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AUTHOR Huff, Anne S.; Pondy, Louis R.
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ABSTRACT

Four papers generated by a broader study of issues management in three suburban Chicago school districts are collected here. "Achieving Routine" focuses on the effective routinization of organizational change, in this case a curriculum decision, through the use of administrative mechanisms and the conceptual linkage of the new to established concepts. An analysis of speeches explores a superintendent's development of the substantive aspect of the issue. "Discovering Strategic Patterns from Documentary Evidence" offers "mental mapping" of causal statements in 73 speeches by a superintendent as evidence about the way in which a key figure interprets issues over time and attempts to influence others to make similar interpretations. "Situation Interpretation, Leader Behavior, and Effectiveness" applies Steven Toulmin's content analysis, which approaches a leader's statements about decisions as a series of arguments. One superintendent's problem reformulation and decision framing are investigated through analysis of 14 interviews. "Toward an Interactive Model of the Natural and Rational Aspects of Accounting in Its Organizational Context" interprets the uses of accounting analysis in two case studies of problem-solving processes in order to discuss an interaction of rational and natural systems of organizational life. (MJL)

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Part II

Issue Management by School Superintendents:

Final Report on Grant No. G-80-0152

National Institute of Education

Anne S. Huff and Louis R. Pondy

Co-investigators

Correspondence should be directed to:

Department of Business Administration
1206 South 6th Street
University of Illinois
Champaign, IL 61820

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4. Anne S. Huff, "Situation Interpretation, Leader Behavior and Effectiveness," presented at the NATO Sponsored Symposium on Managerial Behavior and Leadership Research, July 11-16, 1982, Oxford, England. To appear in Volume 7: Leadership, edited by J. G. Hunt, et. al., University of Southern Illinois and Pergammon Press.

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Achieving Routine[1]

Louis R. Pondy

and

Anne S. Huff

Department of Business Administration
University of Illinois
Urbana, Illinois 61801
Phone: 217-333-4240

Abstract

The research reported in this paper began with the preconception that uncertainty and the need to discover new "framing" concepts would most frequently face school decision makers who tried to significantly alter their domain. The first such decision investigated in depth, a curriculum decision that dominated the attention of top level administrators for one and a half years, did not, however, follow these preconceptions. Instead, it passed quietly through a set of established procedures, rhetorically deemphasized as a major event.

Two explanations are offered for the achievement of this smoothly orchestrated event. First, a set of well-known procedures or "administrative mechanisms" were available to channel consideration of the new curriculum. Second, the superintendent had gradually developed a way of conceptually relating the new curriculum to other well-established curriculum concepts. We suggest not only that "orderly" transitions of this sort have been underattended in recent years, but that the ultimate challenge to even the most dramatic organizational decisions is to achieve just what is exhibited in this case history--the transformation of the new into the unexceptionable.

Most organizations at one time or another make important, even dramatic, changes in their domain (Thompson, 1967) of operation. They modify their clientele; they alter their mix of products or services; they adopt radically new technologies of production or distribution; they merge with other organizations; they divest themselves of long-held property or programs; they reject an existing ideology and develop a new self-concept; they move to new geographical locations.

The explanation of how shifts of this sort take place has recently focused on surprise and uncertainty. This explanation asserts that major organizational decisions are produced by charismatic, ideological, and frequently disorderly processes. It asserts a discontinuity between the processes of day-to-day maintenance of the existing organization and processes that produce long run modifications of the organization. An extended statement of this view was contained in the research proposal which initiated our study of school district management.

> Administration within a given domain presumes the existence of reasonably well-understood objectives and reasonably well-developed procedures and means for carrying out those objectives. Efficient operation under these conditions of low ambiguity requires careful control and coordination of multiple interdependent activities. Students, teachers, courses and classrooms must be scheduled to maximize coordination and utilization. Course content must be controlled to assure requisite coverage of material. Efficient operation implies the development and use of routine procedures on a repetitive basis. Doubt about the appropriateness of action is to be suppressed.
>
> How to manage within a given domain, under conditions of certainty, is implanted in textbooks and taught in courses on administration. But those same techniques of management are ill-suited to the task of changing domains, when objectives are ambiguous or in dispute and the consequences of actions are unknown or poorly understood. [Emphasis added]

> Indeed, management under conditions of ambiguity is not well studied, developed, or understood. Thompson (1967) argued that under such conditions, decisions are made by "inspiration," that is, by the unarticulated insights of a charismatic leader. March and Olsen (1976) described such decision processes as the random intermixing of problems, solutions, issues, and decision makers in decision situations described as "garbage cans." Weick (1979) proposes a model of learning under conditions of such high equivocality or uncertainty as a process of evolutionary drift driven by random enactment and selective attention under the loose control of only partially consistent retentions from previous experience. Meyer and Rowan (1977) observe that there will always be a contradiction between the systems for operating efficiently within the existing domain (created to be in tune with some environment) and the rationales created for interfacing legitimately within some new environment. Whereas administration for current efficiency is characterized by nearly complete knowledge, consistency and acceptance of the status quo, administration for future domains is characterized by ignorance, inconsistency, and rejection of the status quo.

A second explanation of organizational processes can be juxtaposed with this perspective. Fundamental shifts in organizational domain, in this view, result from the ordinary workings of day-to-day processes. Significant shifts, in fact, are frequently not discovered to be fundamental until after they have taken place. Continuity with the past and adherence to routine are the expected state of affairs. In contraposition to dramatic explanations, there is rarely significant difference between the mechanisms of day-to-day activities and major adaptation.

This second account of organizational life is well illustrated in the recent writing of James March:

> Most change in organizations is the result neither of extraordinary organizational processes or forces, nor of uncommon imagination, persistence or skill. It is

> the result of relatively stable processes that relate organizations to their environments. It occurs because most of the time most people in an organization do approximately what they are supposed to do, and what they are supposed to do is to be intelligently attentive to their environments. Bureaucratic organizations are not always efficient. They can be exceptionally obtuse. But most of the organizations we study exhibit an impressively decentralized capability for changing as a matter of routine. ...Within such a concept of change in organizations, drama in organizational events is produced not by dramatic efforts but by elementary processes. The same processes that sustain the dull day-to-day activities of an organization produce the unusual events. Organizations change easily and continually; and the effectiveness of an organization in responding to its environment is linked tightly to the effectiveness of its routine processes. (1980:)

March's emphasis on the routine side of change has become increasingly relevant in our study of three school districts over a two year period. The districts were chosen on the basis of their reputation, among peers and former instructors, for being "well managed." With one or two notable exceptions, March's earlier garbage can model (1976), and our own concept of the drama which must necessarily accompany major new activities, is much less useful for describing these districts than March's later emphasis on "dull," "elementary," "routine" processes.

This paper explores the routine as an <u>achievement</u> of management. We have observed several shifts in organizational domain (including change in clientele, altered mix of products and services, adoption of new technologies, and divestment of property and programs) that were achieved without drama. They did not have the ambiguous, disputed objectives or the unknown and poorly understood consequences which we emphasized in our original proposal. Rather than accept the absence of these problematic conditions as à priori characteristics of the situation, however, it is interesting to ask <u>how</u> significant domain

change can be presented so that these problematic conditions do not emerge. In the case analysis which follows, two factors seem to be particularly important in achieving routine: the existence of a well known set of administrative "mechanisms" to channel the decision process, and a way of conceptualizing the issues involved which link them to prior activities of the organization.

Background

The broader study of which this paper is a part focuses on the process of "issue management" in three Chicago area school districts. An issue is identified as a set of concerns which top level administrators identify as both important to the long run nature of the district and as occupying considerable organizational effort. Several such issues have been followed in each district, including two potential school closings, extension of a foreign language training program in the elementary grades, merger with a regional vocational training center, reduction in the educational budget, abandonment of student self-scheduling in a high school, reorganization of the administrative structure of a junior high school, and the purchase of microcomputers for use in elementary classroom instruction.

The overall objective of this work has been to broaden the focus of most research on decision-making by simultaneously considering a) the contribution of multiple actors to decision-making, b) the simultaneous existence and potential interaction of many different issues requiring decision-makers' attention, and c) the changing nature of "what's at issue" as the decision context itself evolves over time. The unit of analysis has been the issue itself and a descriptive case history for

each issue studied has been constructed. Data have been collected by a variety of methods: interviews with key participants; observation at meetings of administrative staffs, Boards of Education, parents and the public; examination of minutes, reports, speeches, news releases, and other written documents. All interviews and some meetings have been tape recorded and transcribed. Relevant stories in the local newspapers have been summarized. All data are coded and entered into computer storage for key word retrieval. Almost all of this data gathering has been done by two researchers so that there are two sets of observer notes to compare. The impressions of these observers are generally compared and tape recorded immediately following contact with one of the sites.

The analytical strategy of the study assumes that each issue may have important idiosyncratic features. Therefore, "theory" is developed for <u>each</u> issue without forcing premature uniformity across issues. It is quite likely that different issues are managed differently, even in the same district. It is also presumed that something of general, abstract, theoretical significance can be learned from the analysis of even a single issue, although we will next attempt to relate the management of issues across districts.

The analytical strategy is illustrated in this paper by selecting a single issue, describing its life course, analyzing the processes used to manage its development, and charting the changes in substantive emphasis which occur over time. The theoretical frame within which this analysis takes place focuses on the way in which a change in organizational domain was effectively "routinized."

The Site and its Repetoire of Administrative Mechanisms

Shady Grove,* Illinois, is an upper middle class suburb of Chicago, populated by families whose breadwinners tend to be employed in management and the professions. It is politically conservative, and strongly supported Reagan in the 1980 Presidential election. Community members place a high value on education, and take as their educational reference group other elite metropolitan suburbs from across the country, such as Scarsdale and Palo Alto. School administrators pride themselves on being educational leaders rather than followers, with an emphasis on excellence, innovation, individualized instruction and strength in basic education. Candidates for public office, including school board members, are selected by a caucus of community leaders, and typically run unopposed. The school system is organized into an elementary district (K-8) and a high school district. Each district has its own seven member Board of Education elected to rotating four year terms. We are studying the elementary district.

Robert Sampson received his Ed.D. in the early 1960's and has been Superintendent of the Shady Grove Elementary School District for about ten years. His central administrative staff consists of an Assistant Superintendent, a Business Manager, a public relations officer, a school psychologist, a building and grounds supervisor, and various clerical personnel, all housed in the same administrative office building.

The district consists of six elementary schools and the junior high. Enrollment has dropped 24% percent since 1973-74 to its present 1980-81

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*Pseudonyms are used throughout, and facts are altered slightly to preserve anonymity of the district.

level of about 2100 students. The pupil-to-teacher ratio is about 21 to 1. Staff reductions paralleled the enrollment decline and certain programs were phased out during the 1970's, so that the district is currently in good financial condition. Vacant classroom space has been rented out to a local junior college and other non-profit community organizations. To date, no neighborhood schools have been closed.

A variety of regularly scheduled group meetings comprise the administrative apparatus of the distict:

1. The Superintendent meets weekly with the Assistant Superintendent, the Business Manager, and the public relations officer in an administrative staff meeting. Usually one of the building principals attends this meeting.

2. The entire central administrative staff meets once per month with all the building principals in the principals' meeting.

3. At one additional meeting per month, this same administrative group is joined by the "teacher-administrators" (one person per building, each devoting 25% time to administration) in an all administrative staff meeting.

4. The Board of Education meets once per month in its regular meeting, at which official business is transacted.

5. The Board also meets the week before the regular meeting in its curriculum meeting to review the district's various programs and to discuss proposals for programmatic change. No official votes are taken at this meeting. The curriculum meeting of the Board is a long standing tradition in Shady Grove, having functioned continually for 30 years.

It is perhaps the districts' most distinctive administrative characteristic and can play a key role, as shall be seen, in strategic decision making. The agenda of the curriculum meeting is planned several months in advance by the Assistant Superintendent.

6. The Board sometimes meets immediately after its regular meeting in executive session to discuss sensitive matters relating to personnel and property management.

7. Once per year, typically in the fall, the Board takes a Board tour of the physical facilities to inspect repair work and the general condition of buildings, classrooms, and other facilities.

8. The budget committee and when necessary the negotiating committee of the Board meets between regular meetings of the Board to conduct committee business.

9. In most years, the Board and the central administrative staff conduct open forums with the PTA organization in each school in the district. The Superintendent may also meet 2-3 additional times per year with the district-wide PTA group on special topics.

10. In special cases the Board will appoint a blue ribbon committee from the community to study and make recommendations regarding some problem or program in the district.

Together these regular meetings provide more than one hundred occasions per year when the Superintendent can discuss affairs of the district with his immediate staff, building administrators, the Board, parents and the public. The kind of items allocated to each kind of meeting are well specified and anticipated by participants. This administrative apparatus constitutes a complex information processing and decision-making network that operates according to a more or less

predictable routine, supplimented by innumerable less formal contacts and group meetings. A crucial question for the research is how this set of formal administrative mechanisms is used when domain changes are considered in the district.

The Issue: Microcomputers in the Classroom

In February 1980, at its monthly regular meeting, the School Board of Shady Grove voted unanimously to spend $25,000 to buy ten Apple II Plus microcomputers for use in classroom instruction. The decision was made on the recommendation of a blue ribbon committee of computer experts drawn from the community, which had begun work on the problem seven months earlier. In the charge to the committee, the Superintendent provided a prioritized list of objectives that he hoped the committee would attempt to achieve in making a recommendation on computer usage, including the suggestions that:

- students would become "literate" enough to use computer technology in everyday living
- students would master basic course material through the use of the computer
- teachers would be able to track student progress and provide student options via the computer
- the computer would be available for drill and tutorials to meet individual student needs.

These first level priorities were followed by suggestions that the computer should also be available for testing, research, data storage, simulations, and that students should have "the opportunity to learn the BASIC computer programming language."

The list of objectives proposed a fundamental change in the school district curriculum in the eyes of the superintendent. Computer technology was to be introduced into the curriculum as a topic in its own right. But the computer was also seen as a more general teaching device for "all students" in "all areas of the curriculum," as an administrative device for management of instruction, as a device for research, as a mechanism for storing instructional programs, and as a way of developing "basic skills." Computers thus described would impact the activities of both students and teachers. This is an innovation, in short, with the potential for pervasive impact on the school system's pedagogy and curriculum.

It is difficult to pinpoint exactly when the district began to consider the possibility of buying microcomputers for instructional use. The first time the topic appeared on any formal agenda of the Board of Education was at the May 1979 Curriculum Meeting, under a discussion topic headed "Technology in Education." The topic had been announced to the Board at its prior regular meeting in April. At the May Curriculum Meeting six reprinted articles were distributed on various aspects of personal computing and computer assisted instruction. A seven page handout was also prepared and presented by the staff, (the Superintendent, the Business Manager, one of the elementary school principals and the Director of Audio Visual Instruction). This handout began by asserting that "[t]he computer is the ultimate audio-visual machine," [emphasis added] an early sign that the computer issue would be linked closely with a familiar technology while its novelty was deemphasized. The handout went on to stress the need to develop "computer awareness"

in grades K-3, and "computer literacy" in grades 4-8. Possible uses, available texts, films, and reference works were listed.

At the regular meeting of the Board in June, a unanimous vote was taken to create a "Committee to Review Computer Technology." Prior to the meeting, the superintendent had already secured an agreement to serve on such a committee from three community members with computer expertise. They were asked to select two additional members, and given the charge "to review Computer Technology and investigate possibilities for its future in the District."

No further mention was made of the project at the July Curriculum Meeting, despite the presence of the agenda of an extensive discussion of the mathematics program, including the desirability of using hand held calculators in mathematics courses, an issue that was at least peripherally related to computers. However, at the July regular meeting of the Board, the full composition of the "Committee to Review Computer Technology" was announced, as were its plans to hold its first meeting two days later.

From that date until the January 1980 curriculum meeting, six months later, when the committee presented its findings and recommendations to the Board, only occasional mentions of its continuing progress were made at regular Board Meetings. For example, in the September, 1979 minutes, the Superintendent reported that "The Committee on Computer Futures" (note the subtle change in committee designation from "Committee to Review Computer Technology") continues to meet twice a month." The committee submitted its report at the January 1980 Curriculum Meeting. The report was formally accepted at the February 1980 Curriculum Meeting, and at

the February regular meeting, the decision to appropriate $25,000 to buy ten microcomputers was officially taken.

Despite the statement of far-reaching objectives, the potential impact of the decision to invest in the microcomputers was only mildly noted by the Board. In the minutes of the February Board meeting, it was reported that "President Alexander said he had no quarrel with the expenditure [of $25,000]; however, this is a substantive change in the curriculum and he wondered if the Board had spent enough time talking about it, adding that it was not only dollars and cents but an important commitment." After "further extensive discussion," the Board voted approval of the expenditure, and went on to the next agenda item, approval of the recommendations of the textbook selection committee.

Broader publication of the microcomputer decision was similarly low-keyed. The district publishes a short newsletter four to six times per year for distribution to all community leaders. In the March/April 1980 issue, a 3/4 page story announcing the microcomputer decision was printed on an inside page. The story related the thoroughness and breadth of consultation of the decision process and the goals of the program. However, it concluded on a conservative note with Superintendent Sampson stressing the program's continuity with long-standing values and policies:

> District X is committed to instruction in the basic skills...making our students literate through heavy emphasis on reading, writing, listening, speaking, mathematics, social studies, science, foreign language and the arts. In this context, it is incumbent upon our district to make students literate in the 1980's version of our basic skills - computer language.

Thus was a potential major change in curriculum pictured merely as a natural extension of the district's commitment to "basic skills" and "literacy."

There is every indication that this is an innovation that will "take" in the district. By April of the first year 400 of 600 junior high students had taken a basic course familiarizing them with computer operation. Many students in other grades had also been involved. In-service teacher training had been carefully orchestrated to involve key teachers, including the head of the teachers union. Fifteen teachers and learning center directors chaired by the Jr. High School Principal, were appointed to a committee to implement and monitor the program. A primary aim of the committee was to develop a three year extension of the program. This group made presentations to the Board at its May and June 1981 curriculum meetings, recommending among other things, the purchase of 40 additional micro computer systems. The board approved these plans in its regular July meeting, authorizing an expenditure of over $140,000.

Management of the Computer Issue

The following features seem most noteworthy in this chronicle:

1. For this particular issue in this particular district, issue management is better described by the routine perspective identified at the beginning of this paper than by the dramatic perspective. There is heavy reliance on the use of existing and familiar administrative mechanisms activated in familiar ways. The introduction of computers is framed as an extension rather than as a sharp break with current values and policies. Jim March's recent views on routine-driven change, rather

than our own initial focus, better describe the data. Routine definitely triumphed over drama.

2. Proper choice of language helped frame the decision as ordinary and routine, downplaying potential discontinuity with past practice. Prime examples include describing the computer as an "audio-visual device," computer knowledge as a "basic skill," the educational objective as computer "literacy," and the opportunity to learn a programming language on "teaching the computer."

3. At least five distinct administrative mechanisms were used during the decision process. (1) the monthly regular meeting of the Board of Education, (2) the monthly "curriculum meeting" of the Board, (3) the blue ribbon committee of computer experts drawn from the community, (4) the weekly administrative staff meeting and (5) the in-house committee of teachers and learning center directors. These mechanisms might be thought of as the empty containers into which issues such as the computer issue are poured. They are stable parts of the administrative structure ready to be called into being or "attached" (Sproull, 1980) to some specific issue. Each mechanism appears to have a routine way of operating, and each is a <u>general</u> routine (or operator) in that it can be applied to the processing of a wide variety of problems.

Such administrative mechanisms are well-suited to carrying out some tasks and poorly suited to carrying out others. For example, the curriculum meeting of the Board seems ideally suited to a general overview and assessment of a situation, but (at least in this case) was poorly fit for creating and evaluating solutions to the problem at hand, or even for defining the problem in the most fruitful way. The

regular meeting of the Board served the function of publicly taking and displaying decisions to create committees, approve findings and commit funds. Strung together, these mechanisms comprise a long sequence of information processing routines that constitute the observable artifacts and vehicles of an issue management strategy.

4. Each of the administrative mechanisms served not only to advance the decision process but also to link key sets of participants: computer experts to the Board, the administrators to the teaching staff, the district to the public. The sequence of mechanisms can be seen as creating a network among organizational actors. Further, the superintendent, the director of audio-visual instruction, and a teacher with a longstanding interest in computers, played important linking roles. Despite the involvement of different groups of participants at different points in the decision process, these three actors (especially the superintendent) were involved in all aspects, including attendance at every one of the meetings of the blue ribbon committee. Thus, while participation of other players shifted over time, as March's "garbage can model" (1976) asserts, there was significant continuity in the involvement of key actors, and the administrative mechanisms themselves further carried information from actor to actor.

5. The Superintendent consciously used well-defined criteria to select and structure the sequence of administrative mechanisms for managing this issue. For example, he expressed the following rationale for using a blue ribbon committee to generate the initial recommendation on microcomputers.

> Typically, if we had this kind of problem we would go with a professional staff who should know more about these instructional matters than anyone else. In this particular case we didn't have anybody on our staff that had any expertise in this area. So we had to go somewhere else to get the expertise....You see, if we take our teachers, and they talk about reading to the Board, they have tremendous credibility. If we take that same staff and talk about computers, we don't have the credibility, so we had to find somebody with credibility. The nature of the thing dictated that we get this blue ribbon committee.

In a future paper we plan to describe the superintendent's operative decision rules for choosing and sequencing what we have called "administrative mechanisms" such as the blue ribbon committee. Our current working hypothesis is that a stable set of such rules exists in his thinking and actions and that they have been, in part, more broadly institutionalized within the administrative structure of the district as a whole. These structures, together with the set of administrative mechanisms, appear to embody the routines by which the Shady Grove School District is able to consider and bring about changes in its domain, such as the introduction of micro-computers, without fanfare.

The Substantive Content of the Computer Issue

The rest of this paper focuses more closely on the superintendent as a key actor in developing the substantive side of the computer issue. We have stated that Samson had an initial commitment to bringing computers into the classroom, and have given some evidence of his ongoing efforts to accomplishing this goal. This part of the paper examines the nature of that commitment. More specifically, we draw upon documentary evidence to analyze:

1. the reasons why the superintendent supported the introduction of computer instruction in 1980,
2. the sources of that support from statements going back to 1965,
3. the way in which the superintendent's thinking changed as events unfolded in the years between 1965 and 1980.

The ultimate claim made in this analysis is that in a fifteen year process of thinking and speaking about the role of computers in schools the superintendent held to a basic set of beliefs revolving around the nature of social change and the importance of individualized instruction. The expression of this central theme, and the computer's contribution to it, evolves over time, but continuity in the underlying framework is easily documented. The superintendent appears to have had, in short, an underlying set of beliefs that:

1. were strong enough to motivate fifteen years of interest in computers, and
2. were flexible enough to encompass major changes in the technical capability of computers, the opportunities available for bringing them into the district, and the district's capacity to respond.

This part of the paper examines these beliefs more closely and concludes by speculating that a long gestation period from initial interest in computers to their adoption in the curriculum may have had much to do with the routine way in which the computers issue was ultimately brought to fruition in 1980.

The Speech File and its Analysis

Analysis of the superintendent's interest in computers is primarily based on the speeches he delivered from 1965 to 1980, supplemented by one of the first interviews conducted as part of the study (in 1980) which focused on micro-computers. For this preliminary paper eight speeches have been analyzed in detail. The speeches were chosen from a file of 73 speeches available from the superintendent's office, a set which the superintendent feels is virtually complete. Unfortunately, the preponderance of available speeches, especially in full written rather than note form, are from the early to middle 1970's. Further, the speeches given in the later half of the 70's are increasingly preoccupied with the twin problem of finance and declining enrollment, rather than curriculum or educational philosophy.

The preliminary analysis which follows, therefore, draws primarily upon five speeches delivered between 1965 and 1976 and our own interviews, supplemented by analysis of the outlines of three speeches given to new faculty in the late 1970's. Three of the early speeches are clearly related--that is, there is a substantial overlap in text--which allows a direct assessment of changing emphasis and argument. Two of these three speeches, delivered in 1965 (210 lines[2]), 1969 (190 lines) and 1973 (458 lines), were delivered to unknown audiences. Two other speeches delivered to parents (107 lines) and students (135 lines), were chosen to give additional insight into the superintendent's argument before identified audiences. The exact date of these speeches is unknown, but they are estimated to have been given in the early 1970's by the superintendent. The final set of speeches, delivered to new

teachers in 1977, '78 and '80, is also highly interrelated. Each follows the same outline, and shows substantial overlap in content as well. Here again, departures from the format are taken as significant indicators of change in the superintendent's thinking and priorities.

Although detailed analysis of the other speeches in this file have not been completed, preliminary investigation leads us to believe that there is considerable consistency in content between the eight speeches used in the analysis and the total set. The superintendent's statement of a five point philosophy, in particular, is reiterated in well over half of the speeches he has given, with only one minor addition in the years from 1965 to 1980.

The primary method used for analyzing the superintendent's speeches involves coding each speech into an exhaustive list of causal claims and then combining claims into a "mental map" of connected concepts. The method was developed by Robert Axelrod, a political scientist, and has been broadly applied. For example Axelrod and his associates have used it to analyze transcriptions of meetings held by a policy level committee in the British government, the writings of one of the signers of the declaration of independence, the recorded participation of a Middle East expert in a gaming exercise, and forced choice questionnaires. These studies indicate complete consistency in the maps constructed. That is, despite the use of from 43 to 116 distinct assertions in the first three studies cited, in no case does the speaker assert connections which are inconsistent with previous claims (Axelrod, 1976: 229-230). In addition, the coding of these texts was accomplished with very good intercoder reliability: 96 percent agreement on the location

of cause and effect and 97 percent agreement on the direction of the sign (Axelrod, 1976: 227). There is less agreement among coders on whether or not a causal claim has been made, as would be expected when coders are asked to infer causality to statements not grammatically stated in a causal form, but even here Axelrod reports an intercoder reliability of 80 percent in his own policy committee study (Axelrod, 1976: 85).

This study used a modified version of the coding manual by Wrightson, which appears as an appendix in Axelrod (1976). Statements are coded, where applicable, into one of nine categories, summarized in Table 1.

Table 1 about here

The clauses involved, which follow verbatim the text if possible, are then examined for equivalency, following rules specified in the code book, and combined into a map of connected statements. In some cases assertions not central to the analysis are combined or dropped.

For example, one of our interviews includes the following statement:

> ...this microcomputer that has become available because of space age technology...is impacting the home with the microwave oven; it's impacting the car with the little computer you punch in; it's all in the transportation industry; it's in the communication industry; it's on the desk of a lot of people that live in our town....And then the question is asked: why teach the kids? Well, because these are the kids that are going to be operating these things tomorrow. So I see this as an educational problem of making our students literate in this area. And I think this is going to be a basic skill of the 1980s.

This statement was initially coded[3] into the following set of claims.

space age technology	/+/	microcomputer availabil[ity]
microcomputer availabil[ity] with the microwave oven	/m/	home

microcomputer availability	/m/	cars
microcomputer availability	/m/	[the nature of] transportation industry
microcomputer availability	/m/	[the nature of] communication industry
[widespread use of computer]	/+/	[today's] students operating computers tomorrow
[today's] students operating computers tomorrow	/+/	educational problem of making students literature in [computer] area
[literacy in computer area]	/=/	basic skill of 1980s.

Figure 1 shows the way in which these claims were subsequently condensed and incorporated into a larger mental map of statements involving change in society. Each of the five speeches analyzed in depth for this paper were similarly coded and expressed as mental maps of causal relationships.

Figure 1 about here

The Computer's Place in the Mental Map

The ideas expressed in Figure 1 were put forth by the superintendent as the major rationale for bringing computers into the schools in 1980. He expressed the notion that "computer literacy is going to be a basic skills of the 1980's" over and over in interviews during the last year and a half. When asked whether there were other things that the availability of computers would impact, however, he added:

> Well...the literacy would be the main thing with me. However, we've got a problem when you individualize instruction, when you try to have students working at their own pace in various areas. We have a problem

> for the teachers. That is, coming up with options for each one of these kids each day and charting their progress. If we could use the microcomputer to manage instruction, then that's going to help us solve that one.

The notion of computer managed instruction, which was the focus of a discontinued pilot project on computers in 1976, is thus still alive in 1980, though of secondary importance to the emphasis on computer literacy as a basic skill needed in the 1980s.

The question that we then set ourselves to answer, drawing upon the speech files, was how far back could we trace these two ideas in the writing/thinking of the superintendent. The answer, to our surprise, was back to the first speech in the file, delivered in 1965 while Samson was assistant superintendent in another district. This speech, "Education for the Future," focuses on two points which Samson still makes in 1980. The first point is that a changing society makes demands upon the school system to educate students for an unknown future; a future in which even the nature of work itself cannot be predicted. The second, and major, emphasis of the speech is that individualized instruction is a mode of education responsive both to the need for adaptive citizens in a changing society and to basic research on the way in which learning takes place.

Computers are mentioned directly in this speech only once, as necessary to schedule complicated programs which require varying class size and varying periods of class instruction. When the speech was rewritten, in 1969, this mention of computers is no longer in the text. But by 1973 a much more extensive revision and elaboration of Samson's ideas on individualized education includes the notion that

> ...Twenty five years from now home-educational centers (individual learning laboratories), containing computer access terminals, television and retrieval systems will replace many school's independent study areas.
>
> The schools of the more immediate future will provide an individual "turf" for each student. These spaces, which are part and parcel of the laboratories and materials centers, will be equipped with a variety of equipment for immediate student recall of information. A computer system which will provide the hardware potential for the retrieval system will also be used to assist and manage instruction. [Emphasis added]

The idea that the computer might be useful for helping teachers manage record keeping also can be found in the speech "Forward to the Basics" which was delivered to a parent group in the mid 1970s. Here, a handwritten insert suggests that finding "a management program to use in individualized instruction" will help realize the district's curriculum goals. Computer managed instruction is mentioned to teachers in 1977 with a handwritten afterthought indicating that computers could also more directly "assist" teachers. (Computer managed instruction uses the computer for record keeping. Computer assisted instruction provides programmed learning packages.) By 1978 "computer managed and assisted instruction" is listed as a program emphasis for the district. The new idea is that "computer technology" also will be stressed. By 1980 microcomputers themselves are listed.

We thus can see the early idea that the computer is necessary to help schedule individualized instruction (expressed in 1965) augmented by the idea that the computer is more broadly useful to retrieve information. These ideas are later joined by the idea that computers can aid teacher record keeping and then by the idea that computers can

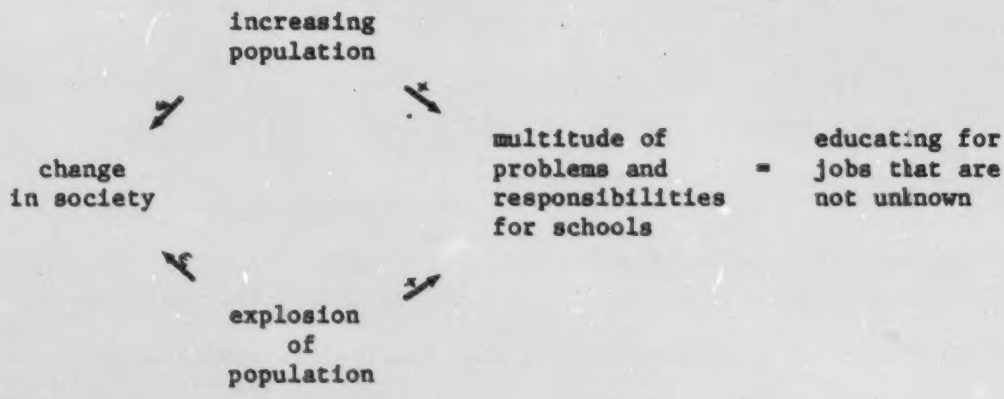
present programmed instruction. The notion that computer literacy is important in and of itself arises in this first group of speeches between 1977 and 1978. By 1980 the need to "wrestle with computers" is in a list of challenges to the district, and microcomputers are mentioned specifically in the list of program emphases of the year.

Computer Literacy in Context

Two ideas from this first analysis of mental maps are particularly interesting. The first observation involves the argument made in 1980 that the schools should help create computer literacy as one of the basic skills needed in the 1980's. The argument in 1980 took this form:

change in society → computer technology → students operating computers tomorrow → educational problem of trying to make students literate in the computer area

This argument is remarkably similar to the argument made in 1965:



What appears to have happened is that "space age [computer] technology" has come to be seen not just as a useful tool but as an instance of basic social change. The computer in 1980 has the same status as population shifts and the knowledge explosion did in 1965. Once this equation is made a whole chain of logic becomes available--a chain of logic that has been repeatedly expressed over fifteen years, a chain of logic that makes it necessary to educate for the jobs of the future.

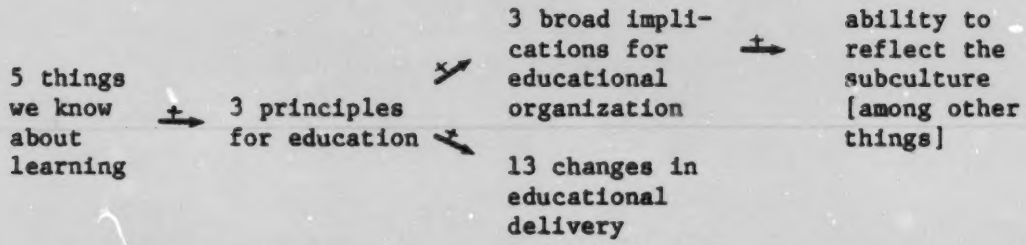
The second interesting feature of the analysis has to do with the richness of Samson's early thoughts on individual instruction, as expressed in Figure 2.

Figure 2 about here

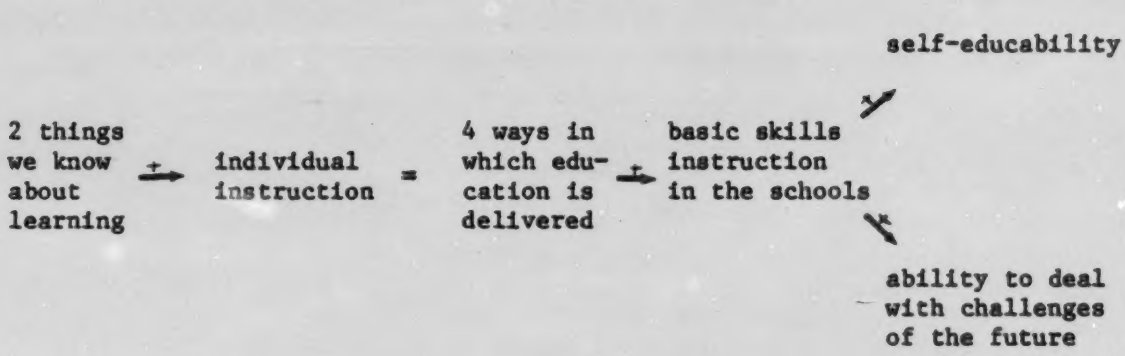
Although we knew that "individualized instruction" was a central philosophical tenet of the district, we did not give it the attention we now think it deserves until beginning detailed analysis of the speech file. References to individualized instruction, such as those which appear in the '77, '78 and '80 speeches to new faculty (Table 2), can be seen as a kind of shorthand to the much more intricate set of ideas expressed in 1965, and then reworked in many later speeches, including the '69 and '73 speeches analyzed for this paper.

Table 2 about here

The 1969 speech, for example, rearranges and simplifies the causes and implications of individual instruction outlined in Figure 2 in the following form:


5 things we know about learning
3 principles for education
3 broad implications for educational organization
13 changes in educational delivery
ability to reflect the subculture [among other things]

Similar fragments of the original chain of logic are found everywhere. For example, a truncated mental map from the speech "Forward to the Basics" takes this form.


2 things we know about learning
individual instruction
4 ways in which education is delivered
basic skills instruction in the schools
self-educability
ability to deal with challenges of the future

By the 1977, '78 and '80 speeches to the faculty 2) even more abbreviated references are found, including the "5 things we know about teaching" listed as part of the philosophy of the district, "reacting to changes in society" starred as a particularly important challenge facing the district, and "futurism" is one of the programmatic emphases for each year.

What has happened, we speculate, is that the superintendent directly expresses a less and less complete chain of logic through time. Certainly for himself, and probably for much of his audience, these ideas and their relationship are well known, they are taken-for-granted, they

have become part of the "ground" against which newer ideas are placed, and out of which newer and now more potent ideas grow.

But newcomers such as ourselves do not have many clues to the past richness or the longevity of ideas expressed in phrases such as "individual education" or "futurism," if we work with current expression alone. More specifically, what going back into earlier writing has done is elevate the idea of individual instruction from decidedly secondary importance as deriving some spillover benefits from microcomputers to more primary importance as the link-pin in a chain of logic that made adaptability a primary educational goal and individualized education the means of promoting adaptability. Once knowledge of computers is identified as a specific example of future oriented adaptability, the link between the computer and the concept of individual instruction must be seen as direct rather than indirect. The superintendent's interest in computers (which we know from interviews began as a graduate student in the early 1960's) was given meaning by the many different ways he saw it supporting individual instruction through time. An interest in computers, nourished by the needs of individualized education, then leap-frogged into prominence as a direct example of adaptability to the future identified as important in its own right. (At the same time the concept of individualized instruction lost potency as an evocative concept and the district now focuses on other, though not incompatible, organizing concepts.)

Conclusion

To some extent, going back into the speech file provides evidence for the idea that major changes in organization are different from day to

day operations. The notion of individual education, to which the need for computers was attached for many years, was clearly central to Samson's thinking. Further, as computer literacy began to have a life of its own, it too has prominence in his writing. The day to day details of the organization are not given such attention.

We speculate that this long period of attentiveness, however, is precisely what allowed the introduction of computers to be so smoothly managed. It is not just that members of the community, the faculty, and the administration were sensitized by the superintendent (as well as by the mass media) to the potential of computers. Continued attention to the same theme contributed to Samson's own ability to present computer education as a normal, natural, routine, part of the curriculum. In retrospect, the many speeches given by the superintendent, especially in the late 60s and early 70s, might be described as a series of rehearsals for the presentation made in 1979-80.

This point might well be underscored. For though it is possible and sometimes necessary to present major organizational decisions as new and dramatic, they will not become secure until they sink into the daily life of the organization. The test of whether an attempted domain change will "take" is whether it can in fact be expressed, sooner or later, as unexceptionable, as not requiring constant attention.

We are beginning to speculate, on the basis of observing other issues as well as the computer issue analyzed here, that the effectiveness of leaders such as Samson may rest on their ability to in general not be dramatic in the work they do. Instead, they fold changing circumstances

into an on-going fabric of sense-making which absorbs the events which might seem startling to newcomers or outsiders (Pondy, 1978).

The structure of meeting agendas, which repeatedly drop small, manageable, updates on the progress of activities such as those carried out by the blue ribbon committee on computers, appears to be a major way in which this is accomplished. Reminders and updates divide into manageable pieces the impact of something like the introduction of computers. They gradually make a new concept familiar. Repeated references help actors less centrally involved in the day-to-day life of the district, such as Board members, parents and the public, see new activities in the district as non-startling.

While it well might be argued for the computer literacy issue that the twin conditions of "ambiguous or disputed objectives" and "unknown or poorly understood consequences of action" were not present to require a dramatic mode of presentation, disparate objectives and various envisioned outcomes do characterize the development of the superintendent's thinking over the long term. Repeated but diverse attempts to link computers to central philosophical tenents in the district may have helped generate an account which in the end helped keep this issue from being splintered in presentation. In addition, these conditions might well have been present in the immediate decision arena in the absence of a strong network of routinely functioning administrative mechanisms.

To reverse the argument we made in our original proposal, and the argument that has held the center-stage in much recent writing about

organizations, the well understood and well developed procedures which constitute administration within a given domain sooner or later must spill over into the administration of domain change. Dramatic descriptions of attempted domain change, such as those offered by Thompson (1967), March and Olsen (1976) and Weick (1979), may be viewed as problematic situations for which successful administrative mechanisms and convincing causal claims could not be generated.

Footnotes

[1]An earlier version of this paper was presented to the Special Interest Group on Organization Theory, American Educational Research Association meetings in Los Angeles, California, April 13, 1980. Support by the National Institute of Education, grant no. G-80-0152, and the research assistance of Bette Hughes is gratefully acknowledged.

[2]Since spacing varies from speech to speech, the line has been adopted as the common unit of measure for all speeches that are not handwritten or in outline format. Any line with more than two words is included in the count, excluding titles and subtitles.

[3]For this preliminary analysis coding was done by two judges, who coded each document independently, and then agreed on a resolution of all differences.

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Symbol	Definition
/+/	politively affects
/-/	negatively affects
/+/	will not hurt, does not prevent, is not harmful
/0/	will not help, does not promote, is of no benefit to
/a/	may or may not be related to, affects indeterminably
/m/	effects in some non-zero way
/0/	does not matter for, has no effect on, has no relation to
/=/	is equivalent to, is defined as*
/∈/	is an example of, is one member of*

*Categories not used by Axelrod.

Table 1: Coding Categories

	1977	1978	1980
CHALLENGES FACING DISTRICT	1. Finance 2. Facilities 3. Unit District Program 4. Negotiations *5. Reacting to "Changes in Society	1. Finance 2. Facilities--closing schools 3. Program--basic subject areas 4. Negotiations ***5. Reacting to "Changes in Society	1. Finance 2. Continue to fill unused space 3. Learn to operate small schools effectively and efficiently 4. Maintain relations between community, staff, and administration 5. Individually wrestle with computers and the new systems ***6. Continue to react to "Changes in Society
EMPHASIS FOR CURRENT YEAR	Language Arts Writing Basic Skills Generally Art Curriculum Math (criterion referenced tests) Computer Managed Instruction (assisted also) Humanizing Education Futurism	Basic Skills Generally Writing Math Computation Competency Based Testing Computer Managed and Assisted Instruction and Computer Technology Humanizing Education Futurism	Basic Skills Generally Curriculum Development 5th Grade Math Gifted Computer Managed and Assisted Instruction Micro-Computers International Studies--Foreign Languages Education in Futures Writing Planning 1980 Forward

Table 2.: Challenges and Emphases Given to New Teachers 1977, 1978, 1980

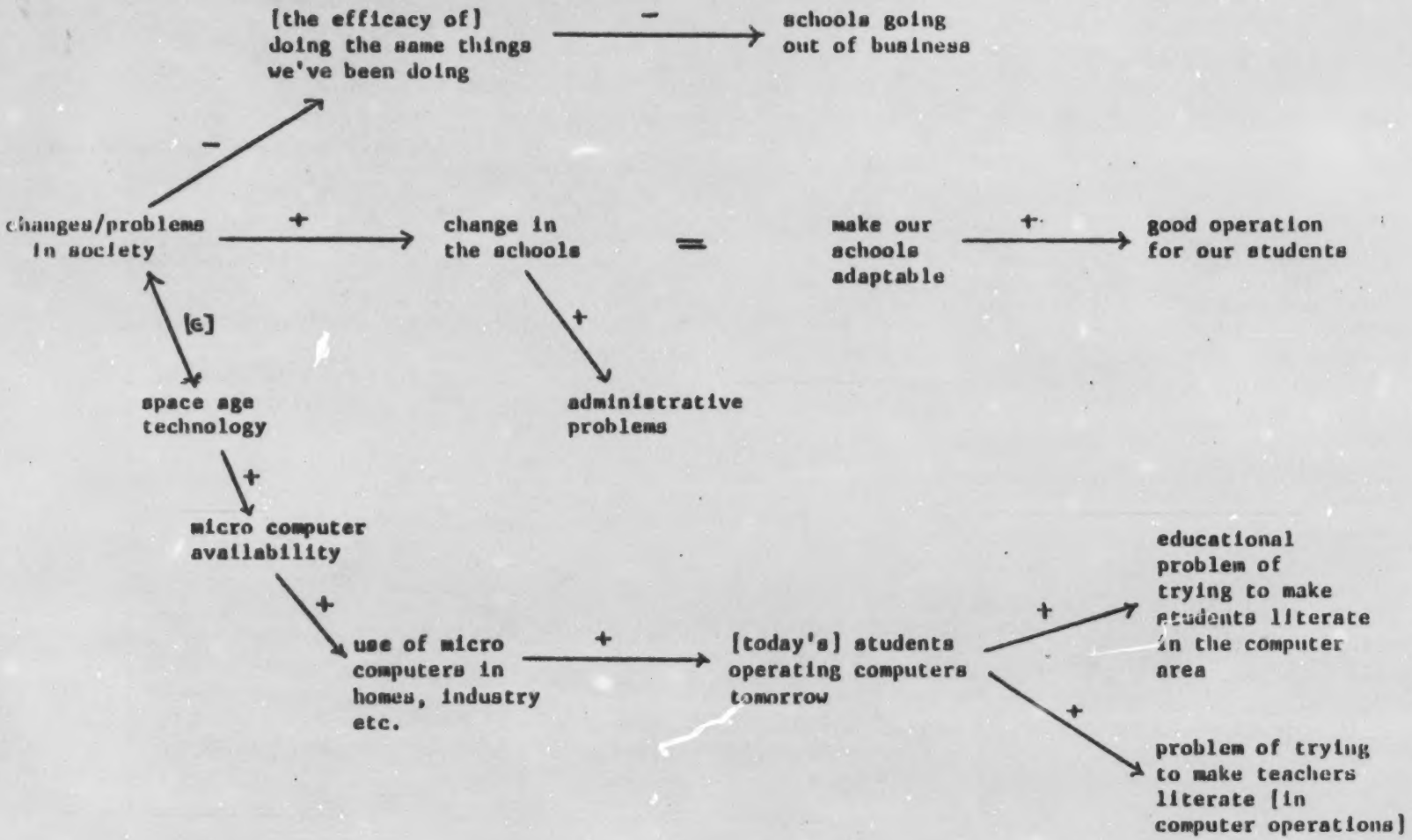
[the efficacy of] doing the same things we've been doing
schools going out of business
changes/problems in society
change in the schools
make our schools adaptable
good operation for our students
space age technology
administrative problems
micro computer availability
use of micro computers in homes, industry etc.
[today's] students operating computers tomorrow
educational problem of trying to make students literate in the computer area
problem of trying to make teachers literate [in computer operations]

Figure 1: Partial map of concepts involving the computer from 2/21/80 interview

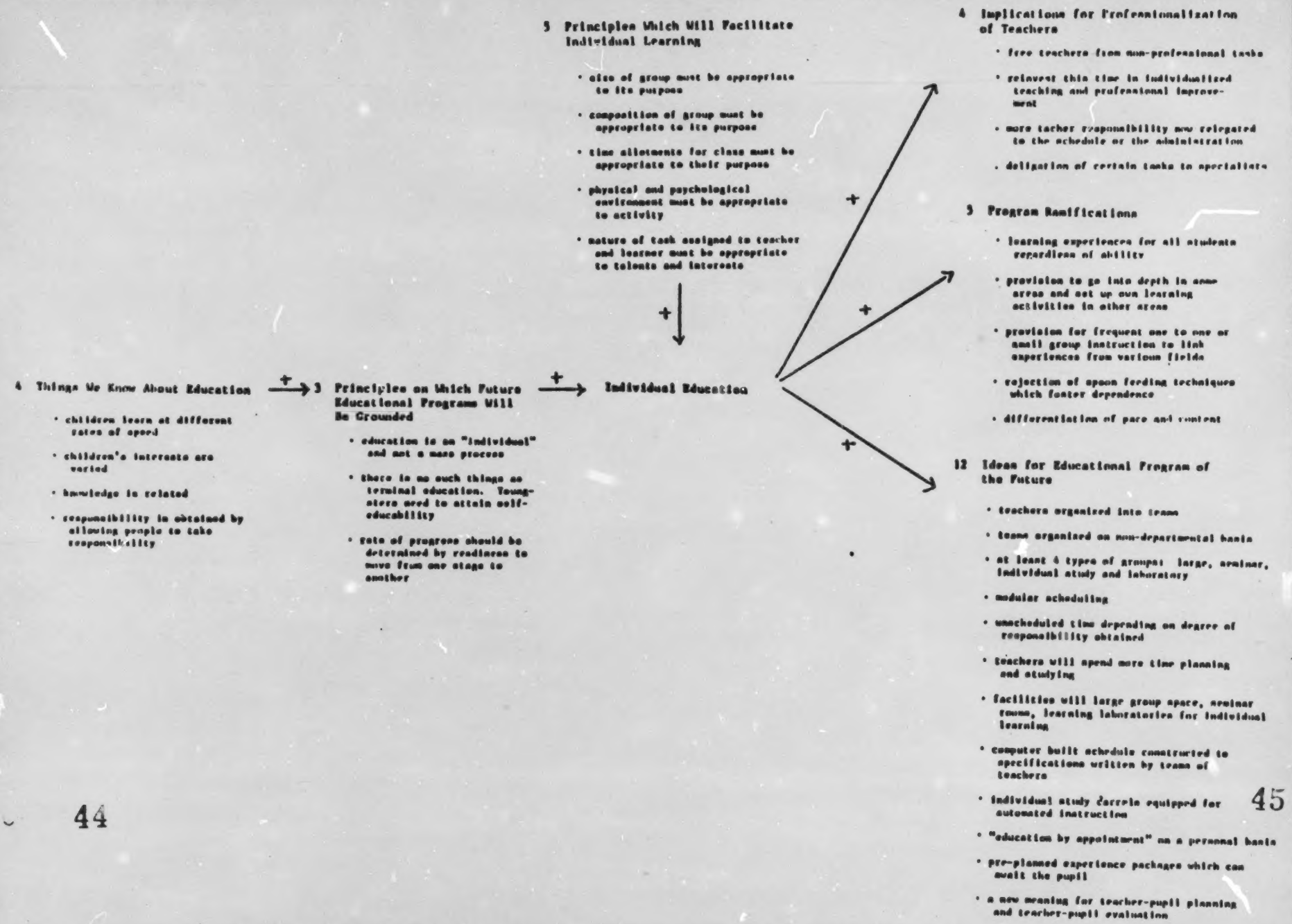
4 Things We Know About Education
• children learn at different rates of speed
• children's interests are varied
• knowledge is related
• responsibility is obtained by allowing people to take responsibility
+
3 Principles on Which Future Educational Programs Will Be Grounded
• education is an "individual" and not a mass process
• there is no such things as terminal education. Youngsters need to attain self-educability
• rate of progress should be determined by readiness to move from one stage to another
+
Individual Education
5 Principles Which Will Facilitate Individual Learning
• size of group must be appropriate to its purpose
• composition of group must be appropriate to its purpose
• time allotments for class must be appropriate to their purpose
• physical and psychological environment must be appropriate to activity
• nature of task assigned to teacher and learner must be appropriate to talents and interests
+
4 Implications for Professionalization of Teachers
• free teachers from non-professional tasks
• reinvest this time in individualized teaching and professional improvement
• more teacher responsibility now relegated to the schedule or the administration
• delegation of certain tasks to specialists
+
5 Program Ramifications
• learning experiences for all students regardless of ability
• provision to go into depth in some areas and set up own learning activities in other areas
• provision for frequent one to one or small group instruction to link experiences from various fields
• rejection of spoon feeding techniques which foster dependence
• differentiation of pace and content
+
12 Ideas for Educational Program of the Future
• teachers organized into teams
• teams organized on non-departmental basis
• at least 4 types of groups: large, seminar, individual study and laboratory
• modular scheduling
• unscheduled time depending on degree of responsibility obtained
• teachers will spend more time planning and studying
• facilities will large group space, seminar rooms, learning laboratories for individual learning
• computer built schedule constructed to specifications written by teams of teachers
• individual study carrels equipped for automated instruction
• "education by appointment" on a personal basis
• pre-planned experience packages which can await the pupil
• a new meaning for teacher-pupil planning and teacher-pupil evaluation

Figure 2: Concepts involving Individual Education from "Education for the Future" (1965)

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Discovering Strategic Patterns from Documentary Evidence

Anne Sigismund Huff
Department of Business Administration
University of Illinois at Urbana-Champaign

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Mintzberg's (1978) suggestion that strategy be defined as a pattern of key decisions over time has been widely adopted (see for example, Andrews, 1980). A major claim for the usefulness of the pattern definition is that strategy thus defined does not have to be deduced from the conscious intentions of the decision maker. In Mintzberg's example:

> When Richard Nixon, early in his first term of office, made a number of decisions to favor Southern voters (appointment of Supreme Court justices from the South, interference with school integration plans, etc.), the press quickly coined the phrase "Southern strategy". Their action corresponded exactly to ours as researchers: despite no explicit statement of intent, the press perceived a consistency in a stream of decisions and labeled it a strategy. (1978:935)

Although the pattern definition thus frees researchers to make their own analysis, it should not be forgotten that the researcher's discovery of pattern is a cognitive process not different in kind from attempts to create order made by those in the organization studied. And, the pattern that the organization's strategist sees is highly relevant to the researcher--even if it is not accepted a priori as the only relevant interpretation of a decision stream. No one is more motivated than the thoughtful organization leader to discover meaning in the tangible activities of the organization. In our concern not to be bound by the deliberate intentions of decision makers, we should not abandon study of the CEO's interpretations as particularly valuable clues to understanding strategic decisions.

Written materials prepared by organizational leaders offer a particularly rich source of data on the strategic patterns seen by those who create strategy. Several methods of analysis are available to systematically study such material. One of these methods, which focuses

on causal assertions, is described in this paper. The outcome of this method of analysis is a "mental map" of concepts and their effects on one another. The method, developed by Robert Axelrod and his associates (1976), has been used to analyze both historical and contemporary material in political science. In this paper it is applied to a set of speeches made by a superintendent of schools over a fifteen year period.

The aim of the research reported is to document the development of the superintendent's thoughts about key strategic decisions over time. Several different sequences of development are evident in the series of mental maps developed so far from the speech file. The researcher with access to this kind of documentary evidence has a rich context for understanding the pattern which a decision-maker ascribes to a series of actions. Without this context important concepts are likely to be overlooked, or given more superficial treatment than documentary evidence makes possible.

The Need for Documentary Analysis

It is not necessarily easy to identify a pattern in strategic decisions. Documentary analysis offers the strategy researcher an entree to the breadth and depth of organizational decision making over time that financial records, interviews and even participant observation cannot capture alone.

The traditional case study method of investigating strategy often depends upon in-depth interviews with organizational participants. While this method can generate many details, it can still be difficult to capture the complexity of strategic decisions--especially in the past.

The researcher conducting interviews faces an interesting kind of simplifying filter. Organization members must try to "tell their story" in an understandable way to a relatively naive outsider. No matter how well prepared, the outsider cannot understand the many details that affect decision-making. It is unavoidable that many complicating details are edited from the accounts these individuals offer to the outside observer. But then, as a "story" begins to take shape, new details are presented in a way which makes them fit with the previous account into one whole. Even the theme that things are not logical here has an editing effect, it tends to suppress the expectable.

The biasing effect of "the setory" becomes more problematic as the researcher becomes an accomplice. As a leader is presented as particularly creative and adaptive, or an organization becomes cast as mired in tradition, or the threat of foreign imports is identified as a key element of the environment, we begin to ask more and more questions about creativity, tradition and imports. These threads can easily become stronger bonds in the story than they are in the organization.

The potential bias of following a few threads through many decisions, is compounded when longitudinal accounts of strategy are desired. The current view of the organization colors recollection of past decisions. The past is unconsciously edited to fit the present, and anticipated future ( ). Many who have rewritten their resume as they apply for a new job can attest to the possibilities of this kind of refocusing.

If key decision makers are no longer available to the interviewer it is even more difficult to reconstruct past decisions. The accounts

of secondary actors are colored not only by present perceptions of strategy but also by the myths about past leaders and past activities which have grown up in the organization itself (Wilkins and Martin, 1980).

Longitudinal and comparative research is perhaps easier to accomplish through the PIMS data base, the publicly available financial information distributed in response to SEC requirements, and the publications of investment services. The problem here, however, is one of detail. The periodic nature of such reports can obscure intervening decisions. Many desirable figures, such as advertising expenditures (Hatton and Schendel, 1977, 99) are not publicly available. Further, correlation does not necessarily imply causality, as recent critics of PIMS based studies have argued (Rumelt, 1981).

Systematic analysis of the documents generated by organizational participants for their own use can help counter these problems. Although documents have always been drawn upon by those interested in strategic decisions, little has been done in the field of strategic management to subject written material to rigorous content analysis.

Content analysis provides an unobtrusive measure of the items which concerned organization members at the time of a decision, and their interrelationships. This tally can be used as the raw material from which pattern is generated by the researcher. It can also be used to supplement financial records, interviews and observations; as the means of jogging the memory of informants; and as the source of ideas for further investigation.

It is important that documentary analysis reflects past interpretation of decisions. It is unbiased by current strategic concepts. Memos, reports, notes of meetings and so on reflect the data that was most salient at the time of decision.

Because documentary analysis uses real-time observations, it also offers a more stable basis for comparing different time periods than interviews allow. Changes in annual reports, in the emphasis of press releases and so on are apt to be more accurate indicators of change in strategic pattern than recollection provides.

Finally, the study of documents is apt to generate more detail than either memory or financial records provide. Thousands of pages of material are commonly available in an organization. Documents prepared for different uses cover the same time period. Though time consuming to analyze, a wealth of detail is available. Because it was generated for a variety of internal uses, it has not been homogenized to fit one "story" about the organization.

The use of documents is not without difficulty, however. Files are often frustratingly incomplete. The documents that are available are the shadow cast by the action which interests the researcher--and not action itself. Even more problematic, the document written from one individual to another is an instrument of persuasion. It cannot be taken solely as the author's opinion; it may be the author's opinion of the opinion which will affect the audience.

Despite these problems, the study of documents can be very important for the researcher interested in understanding organizational decision making over long periods of time. Financial records are periodic,

and limited in scope and explanatory power. Interviews simplify and distort. Key participants in past decisions forget or leave the organization. Documents are a necessary supplement to these sources.

The problems of document analysis can be deflated in various ways. The sheer bulk of paper generated by the organization will hopefully provide some evidence of the events which most interest the researcher, even though many documents are lost. Many documents also can be interpreted as providing the context for action. Especially in the large organization where formal communication is required, they are used by organization members themselves to help interpret decisions. Finally, comparison of documents written for different audiences over long periods of time may help sort the opportunistic remark from more intrinsic interpretation. It is hard to lie consistently over a long period of time. If the decision maker continues to communicate a lie, it tends to take on a life of its own and become at least partially the truth.

Alternative Methods of Analysis

The researcher interested in discovering strategic patterns often can draw upon an extraordinary variety of written material. Budgets, annual reports, news releases, formal internal reports, planning documents, newsletters, correspondence, agendas, minutes of meetings and the like are supplemented by memos, working notes, records of appointments, telephone logs, and other informal written materials. Some of these documents are publicly available. Other materials can be found within the organization; if not in the company's formal archives, then

in the files of individuals. Often the same kind of document is available over the period of years required by the strategy researcher.

While the problems of winnowing such material can be substantial, I have found in several organizations a relatively complete set of similar materials, such as the fifteen years of speeches used as an example in this paper, which shed significant light on strategic concerns.[1] Written materials of this sort can be analyzed in a variety of ways:

The most straightforward analysis involves direct count of words used, with particular attention given to changes in word usage from document to document. This approach has been used, for example, to analyze statements made by world leaders prior to World War I in an effort to predict the outbreak of hostilities, and it has been used to identify trends in social concerns from the U.S. and Soviet media (Lasswell, Leites and Associates, 1949; Pool, 1970).

Word based analysis lends itself to computer analysis. The General Inquirer (Pool, 1970), written in the mid-1950s to facilitate the study of political communication, is perhaps the best known of these programs. A summary of its descendents and other recent programs for content analysis can be found in Holsti (1969).

A problem with content analysis focused on words alone is that it cannot capture the larger sense of the overall document. Rhetorical analysis, directed at the document as a whole, concentrates at this level of analysis. There are many different schemes of rhetorical analysis

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[1] I have looked so far only at natural language documents, but financial documents also record strategic decisions, and can be used to discover strategic pattern (Boland, 1979; Boland and Pondy, 1981).

(Perelman and Olbrechts-Tyteca, 1969; Corbett, 1969), but each attempts to comment on the way in which a document bridges between speaker and audience. My own attempt to use this approach (Huff, 1980) draws especially upon Aristotle's basic concepts of arrangement, style and argument, to compare documents generated by two opposing groups in an organization.

Rhetorical analysis is particularly helpful in analyzing long documents and screening a large number of documents. Once a subject of particular interest has been identified, more detailed attention can be given to specific passages and/or to more limited aspects of a document. Focusing on the arguments made in support of (or against) specific actions seems especially useful.

Steven Toulmin, a philosopher, has suggested that arguments are logically composed of several different elements: the basic claim itself, the data offered in support of that claim, an expressed or implied warrant or principle that make it possible to deduce the claim from the evidence, and qualifications limiting the scope of the claim (Toulmin: 1958). Mason and Mitroff (1981a, 1981b) have used this scheme extensively in their consulting and research as a means of making the basis of strategic arguments (and strategic alternatives) clearer to decision makers. There are however some problems with using this method of analysis ( ) and Toulmin himself is supposed to have said he did not mean to be interpreted literally.

Another method for more explicit analysis focuses on causal assertions. Bougon, Weich and Binkhorst (1977) developed one scheme for inferring the causal assumption used by organization members. A simpler

scheme has been developed by Robert Axelrod (1976). Both approaches generate a "mental map" of concepts used by decision makers. The concepts are connected by arrows indicating causal relationships.

While analysis based on cause alone misses some significant subtleties (such as the assertion that something exists or that one concept is an example of another more general concept), it might be said that causal beliefs lie at the heart of organizational strategy. Strategy is devised because organization leaders believe that they can have an impact on their organization and their environment, they believe they know how to cause things to happen. This approach therefore seems to have particular promise for strategy research.

The Superintendent's Speech File

As an example of documentary analysis based on causal assertions the rest of this paper will discuss a research project focused on seventy three speeches delivered from 1965 to 1980 by an Illinois superintendent of schools. Analysis of the speech file is part of a larger project investigating decision-making in three school districts.[2] In the larger project we are interested in the way numerous individuals have an effect on strategic decisions, and in the way past and concurrent decisions interrelate. The study of the speech file is an important piece of evidence about the way in which a key actor, the superintendent in one of our study districts, has interpreted strategic issues and tried to influence others to make similar interpretations.

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[2]Louis R. Pondy is co-investigator in this study, which is funded by the National Institute of Education, Grant no. G-80-0152.

The seventy three speeches represent virtually a complete record of the superintendent's public addresses from the time he received his doctorate to the present, made as he held three positions of major responsibility in two districts. The bulk of the speeches were delivered to staff (29 speeches), the general public (16), students (11) and parents (5). All of the early speeches are written in sentence form, but more recent speeches are generally preserved in outline.

The preliminary scan of these speeches is being made in the spirit of general rhetorical analysis. Each speech was given a number coded by audience and year of delivery. An "indecks" file card was completed for each speech,[3] indicating the organization of the speech and major subjects covered. This general coding makes it possible to select groups of speeches for closer analysis. For example, a number of the speeches show significant overlap, opening up the possibility for an analysis of change in thinking about specific concepts.

"Mental Maps" of Causal Statements

One type of more specialized analysis follows a modification of the coding manual developed by Wrightson for Axelrod (Axelrod, 1976:291-332). All causal statements in the document analyzed are identified by one of two coders and placed into one of the nine categories identified in Table 1.

---

[3]This card allows coded holes to be punched out along the periphery of the card. When a "needle" is inserted into the corresponding hole on all cards, the coded cards fall out. The number and simplicity of the data being recorded, as well as its exploratory nature, made this method preferable to computerized coding, which is also possible.

Symbol	Definition
/+/	positively affects
/-/	negatively affects
/+/	will not hurt, does not prevent, is not harmful
/0/	will not help, does not promote, is of no benefit to
/a/	may or may not be related to, affects indeterminably
/m/	affects in some non-zero way
/0/	does not matter for, has no affect on, has no relation to
/=/	is equivalent to, is defined as*
/∈/	is an example of, is one member of*

*Categories not used by Axelrod.

Table 1: Coding Categories

At the end of this procedure the phrases connected by these linking causal concepts are assigned an identifying letter. All statements are examined for equivalency, following rules specified in the code book. Equivalent statements are supplied the same letter. A "map" or series of maps is then constructed of connected statements.

Applications of this method in three studies conducted by Axelrod and his associates show complete consistency. In maps covering 43 to 116 distinct assertions, there are no instances of inconsistent assertions by the speaker (Axelrod, 1976:229-230). The coding process itself has also been shown to be quite reliable. These studies show 96 percent agreement between coders on the location of cause and effect (the "side" of the causal sign to which statements were assigned) and 97 percent agreement on the direction of the sign (positive or negative) (Axelrod, 1976:227). Agreement on whether or not a causal statement

has been made is more difficult to obtain, since many of these statements must be inferred. However, Axelrod obtained an intercoder reliability of 80 percent on this aspect of the coding procedure.

While a series of maps can be generated as a distillation of a speech in its entirety, we have been particularly interested in using this method to follow specific concepts. For example, we have a particular interest in the role that "individualized instruction" plays in the district. One of the superintendent's early speeches includes this statement about the importance of individualized instruction:

> We've known for a long time that:
>
> a). Children learn at different rates of speed;
> b). that children's interests are varied;
> c). that knowledge is related;
> d). that responsibility is obtained by allowing people to take responsibility;
> e). and learning is non-sequential.
>
> Let's review these once again so that we can better identify some principles on which future educational programs will be grounded. (1) It seems to me that one of the first principles evolving from the preceding statements is that education is an "individual" not a mass process. I believe that this principle will lead us to individualize instructure more and more as the years progress. If we believe that education is an affair of the individual, that people learn at different rates of speed, and that individual's interests are different, we must agree that we need to individualize instruction to a much greater degree in the future than we are now doing.

This statement includes one of the many kinds of ambiguity which occur in the speeches. The statement "let's review these [points]" would seem to indicate that the second part of the text is equivalent to the first. The last sentence, however, indicates a causal connection between the two, which was taken by the coder to over-ride the use of the word "review".

The statement was thus initially coded into the following set of claims:

Children learn at different rates of speed (A)	/+/	education is an individual and not a mass process (E)
Children's interests are varied (B)	/+/	E
Knowledge is related (C)	/+/	E
Responsibility is obtained by allowing people to take responsibility (D)	/+/	E
E	/+/	individualize instruction (F)
A, B, C, D	/+/	F

These claims generate the following map:

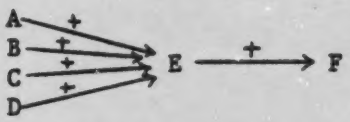


Figure 1 shows a condensed version of the much larger map in which this sequence can be found on the left.

Figure 1 about here

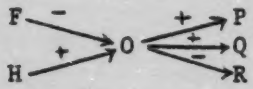
Pattern in Causal Maps Over Time

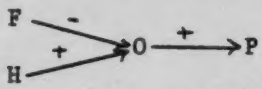
The data from the speech file indicate several ways in which causal beliefs develop over time. Some of these patterns can be cast in very general terms which might be expected to occur in the strategic thinking of leaders from many different kinds of organizations.

1. Simple addition and subtraction. In many cases an argument is repeated from speech to speech with modest variations of the following sort:

(1)

becomes

(2) 

becomes 

In such cases the structure of the argument stays the same, but a set of contributing factors or outcomes is altered. While emphasis for a particular audience or occasion may account for many of these alterations, if a change of this sort is sustained over time the evidence seems strong that the speaker's own thinking has changed, and we might expect a concomitant change in strategy. For example, new actions related to cause C should emerge in example 1, and actions tied to outcomes Q and R in example 2 should become extinct.

2. Figure to Ground. One interesting outcome of the superintendent study involves the concept of individual instruction, which was cited in our interviews with the superintendent as one reason for developing computer instruction. Individual instruction has become an old and apparently trite phrase among educators. Without conscious decision we assumed the use of this concept by the superintendent and others in the district was the reflection of current jargon. The interview data alone did not suggest it was important.

After beginning to analyze the speech file, however, we felt that we had not given sufficient attention to the concept of individual instruction. Individual instruction was the subject of complicated causal maps in speeches made by the superintendent in the late 1960s. Borrowing the vocabulary of psychology, this was the salient "figure" in these

early causal maps. It was reduced to part of the "ground" in later maps, however, which feature a new dominant concept--computer literacy.

Analysis of the speech file showed that in an earlier period the superintendent had actively explored the reasons for institutionalizing a curriculum based on individualized instruction, and he listed literally dozens of implications of this approach for school operations (Figure 1). These implications fluctuated over a period of several years, an indication of actively developing a viable strategy. Then, partially as a result of severe financial constraints, the superintendent's focus of attention shifted in the speeches, and individual instruction moved to a secondary focus.

At the end of the time period we studied, individual instruction is one of several factors which contribute to the need for computer instruction in the schools. The path of development over the entire time period can be generalized in this form:

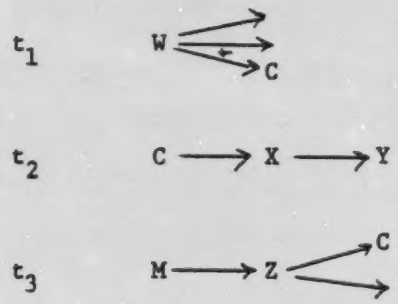
(3)

becomes

This pattern indicates a continuity in strategic concern that we had not previously detected, and reveals a potential consistency between policies implemented earlier, as a part of individualizing instruction, and current efforts to introduce the computer curriculum.

3. Ground to Figure. The reverse of the development just described is the movement from ground to figure. In this case, the concept B (in example 3) emerges from casual mention in earlier speeches to major importance in later papers. The movement is from a periphery position as one of several subsidiary points to a central concept.

4. Experimental Placement. The increased interest in computers, culminating in a new program aimed at producing "computer literacy" might be thought of as an example of movement from figure to ground. On closer examination the superintendent's interest in computers took several forms before settling on the idea of computer literacy. This is a third pattern which also might be taken as generic. At different points in time a concept may be is linked to different arguments.

(4) 

It appears as if the possibilities of this concept are being explored by provisionally linking it to a variety of other concerns. In developments of this sort one might expect relatively little action, until a stable pattern is developed. The indication of a more stable pattern may well be the more modest addition and subtraction outlined in example 1.

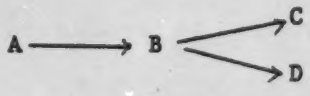
5. Borrowed Logic. The speech file shows at least one incident of a fifth pattern of development in which very similar arguments being made about different subjects.

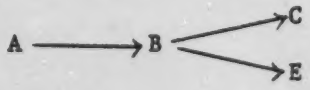
(5)

becomes

In this example the argument outlined with respect to subject X is remarkably similar to an earlier argument about subject B. Although not completely identical, impact C' is similar to C, D' is similar to D. This is formal evidence of using past experience, of drawing a close analogy between two different arguments. If the analogy holds, one might expect activities to move with special speed in this pattern of development, as past experience is drawn upon.

6. Diffusion. While the speech file has not yet generated a specific example, it seems highly likely that with more information about the superintendent's contacts it would be possible to identify concepts and even entire arguments in his thinking that have come from others in the field. While the structure might be modestly altered, an example of the following sort would seem to be strong evidence of shared thinking.

(6) organization α 

organization β 

Identification of this kind of pattern might shed interesting light on industry-wide practices and their impact on the individual organization. If temporal evidence were available, the direction of diffusion might also be established.

Conclusion

When Mintzberg began using the term pattern he seems to have been primarily interested in finding a way of relating a contemporaneous set of actions. The question was whether the outsider could find in the activities of an organization one unifying theme--a way of connecting actions into an overarching strategy such as Nixon's "Southern strategy."

The analytic techniques reviewed in this paper provide methods which can assist this search. Applied to documents generated by organizational actors, the causal maps technique in particular can be used to graphically show the connection which actors themselves draw between important concepts. These connections form one piece of evidence available to researchers for making their own assessment of consistency in decision making.

Documentary analysis can also provide the clues to strategic pattern in a second and larger sense. Here the pattern is one that crosses strategies. The consistency sought occurs through time; it links strategies. In this sense the notion of pattern is akin to Mintzberg's discussion of Volkswagon's development from post WW II to the present.

Documentary evidence may be able to show the way in which the "same" concept is reinterpreted and placed in a different position in a new causal net. The preliminary study of the speech file leads me to

speculate that this kind of evidence will be able to show such continuities across strategies. This is a particularly important kind of evidence to have for better unerstanding the process of strategy reformulation.

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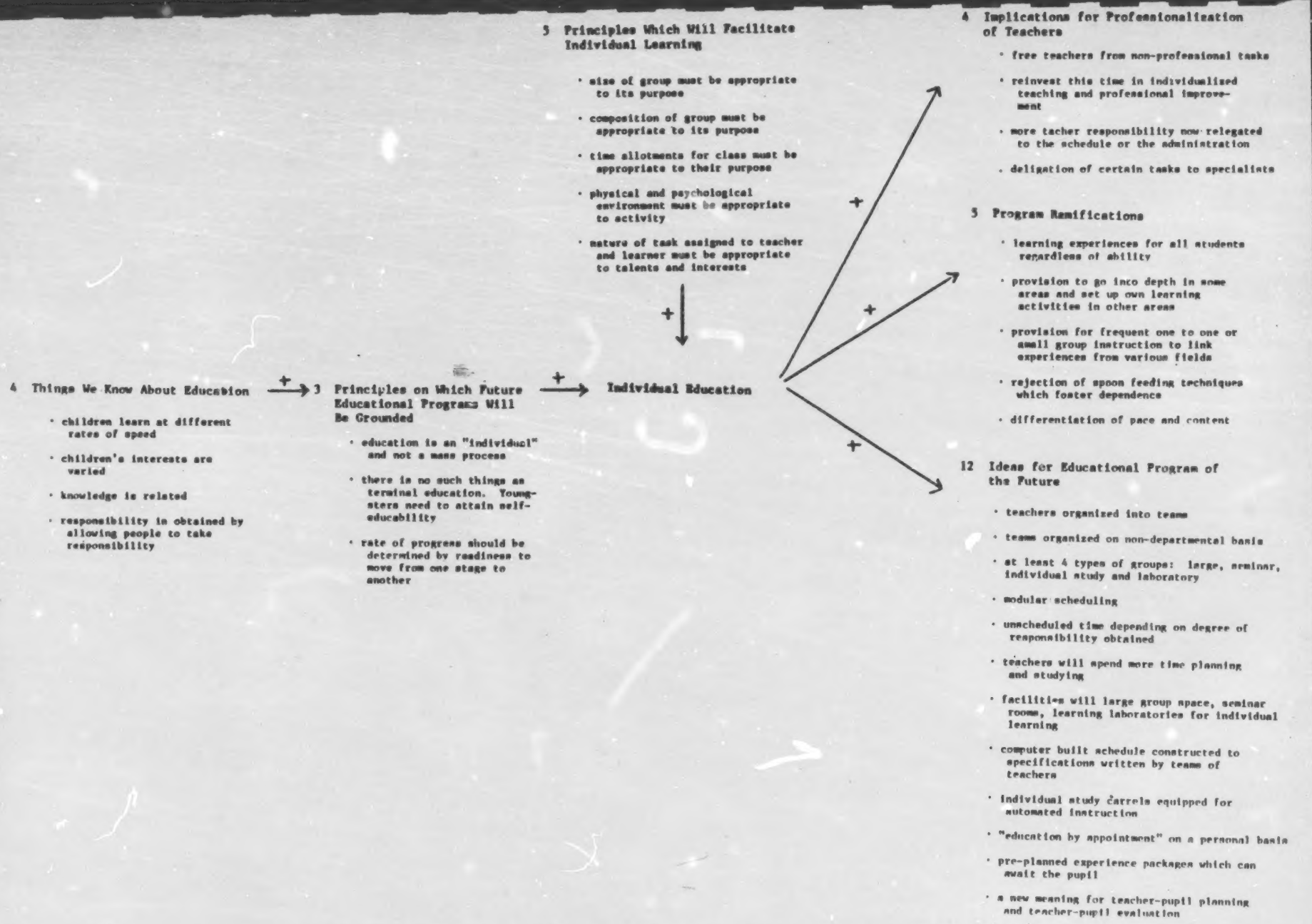
4 Things We Know About Education
· children learn at different rates of speed
· children's interests are varied
· knowledge is related
· responsibility is obtained by allowing people to take responsibility
3 Principles on Which Future Educational Programs Will Be Grounded
· education is an "individual" and not a mass process
· there is no such things as terminal education. Youngsters need to attain self-educability
· rate of progress should be determined by readiness to move from one stage to another
5 Principles Which Will Facilitate Individual Learning
· size of group must be appropriate to its purpose
· composition of group must be appropriate to its purpose
· time allotments for class must be appropriate to their purpose
· physical and psychological environment must be appropriate to activity
· nature of task assigned to teacher and learner must be appropriate to talents and interests
Individual Education
4 Implications for Professionalization of Teachers
· free teachers from non-professional tasks
· reinvest this time in individualized teaching and professional improvement
· more tacher responsibility now relegated to the schedule or the administration
· deligation of certain tasks to specialists
5 Program Ramifications
· learning experiences for all students regardless of ability
· provision to go inco depth in some areas and set up own learning activities in other areas
· provision for frequent one to one or small group instruction to link experiences from various fields
· rejection of spoon feeding techniques which foster dependence
· differentiation of pace and content
12 Ideas for Educational Program of the Future
· teachers organized into teams
· teams organized on non-departmental basis
· at least 4 types of groups: large, seminar, individual study and laboratory
· modular scheduling
· unscheduled time depending on degree of responsibility obtained
· teachers will spend more time planning and studying
· facilities will large group space, seminar rooms, learning laboratories for individual learning
· computer built schedule constructed to specifications written by teams of teachers
· individual study carrels equipped for automated instruction
· "education by appointment" on a personal basis
· pre-planned experience packages which can await the pupil
· a new meaning for teacher-pupil planning and teacher-pupil evaluation

Figure 4: Concepts involving Individual Education from "Education for the Future" (1965)

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SITUATION INTERPRETATION, LEADER BEHAVIOR AND EFFECTIVENESS

Anne Sigismund Huff

University of Illinois, USA

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Abstract

The changing use of language is a particularly important source of data for understanding the way in which leaders structure and restructure their interpretation of decision situations. This paper presents a method of analyzing leader statements about decision situations as a series of arguments. In this perspective, the leader is seen as needing to find an argument that is strong enough to warrant action. The chief executive's participation in many discussions can be interpreted as the construction of trial arguments to see if they have such strength.

Deciding on a way to approach a decision situation can be a time consuming process, however, and another important leadership activity is to influence organization members to adopt similar or compatible interpretations. The behavior required to effectively frame a situation can differ from the behavior required to effectively transmit that frame to others. The conclusion of the paper speculates that in time pressured situations the leader's broad responsibilities make it likely that others will more quickly be able to frame situations and begin to influence others.

More often than they would like, leaders find that an issue they thought was "solved" reasserts itself and becomes a problem again. In fact, seventy percent of the situations managers described for Lyles' (1981) study of problem formulation began with vague feelings of unease about the solution to a situation which had been previously acted upon. In a two and half year study which Louis Pondy and I have made of over a dozen issues facing three school districts, one situation in particular had this character.

Several years before we began studying "Allison Park" (pseudonyms are used throughout this paper), the school board had decided to close Tope School in response to a number of factors, including declining enrollments. When we began interviewing, in November 1979, the Tope issue appeared to be moving toward a final phase of razing the building and selling the land for residential lots. In the next year and a half, however, the focus of decision making shifted a number of times, and finally involved a widely debated option of closing one or more neighborhood schools and reopening Tope as one of several centrally located buildings.

Dick Ingram, the superintendent of Allison Park, found it initially difficult to resolve in his own mind how these options should be compared. The Tope issue was politically volatile, and had both financial and educational ramifications. Only after six months of conversation, intensive public hearings, committee consideration, outside consultation and other problem formulating activities was Ingram confident of the choice to be recommended to the board. This paper discusses the way in which Ingram reformulated the Tope School issue in his own mind and then speculates about the potential tension between the task of problem formulation itself, and the task of influencing others to accept a given formulation.

Data and Coding

The data for this investigation is drawn from the verbatim transcripts of fourteen interviews with Ingram conducted between November 1979 and July 1981 by Lou Pondy and myself. (Three other telephone interviews could not be transcribed verbatim.) The interviews were transcribed into the computer and coded for easier access. A complete record of school board minutes was also coded by subject, as were articles published in the local newspaper. Our understanding of the Tope issue was further enhanced by attending seven board meetings, interviewing two board members and one principal twice each, attending a faculty planning committee, and other less formal contacts with the school district and its personnel. Tope School was not the only focus of our investigations at this site, but during the spring of 1981 it dominated most of the district's attention, and therefore most of our attention.

To understand Ingram's attempt to make sense of the Tope issue the study focuses on the language he used, and the arguments he made, in our interviews. The interviews have the advantage of being collected during the process of deliberation, in contrast to most studies of decision-making which rely on retrospective or laboratory evidence.

The scheme of content analysis applied to the interviews comes from a philosopher, Steven Toulmin (1957, 1979). Toulmin suggested that in most natural situations individuals make assertions without being sure that those assertions are true. This perspective fits the policy maker very well. The issues about which policy decisions must be made almost always involve considerable uncertainty. Policy makers try to find evidence that is strong enough to justify making a decision, even though that evidence is rarely conclusive. Because the links between evidence and conclusions often are not immediately apparent, policy makers can be thought of as

having "arguments" with themselves and others. The purpose of these arguments is to find a logical structure of sufficient strength to warrant action.

Toulmin offers five categories for analyzing arguments. The main line of the argument consists of a "claim" and the "data" offered in support of that claim. Since uncertainty is involved, additional support, or "warrants," are often added which suggest why the jump from evidence to claim should be taken. In fact, the speaker sometimes provides "backing" to further support the warrant. Finally, the claim may be "qualified" by the speaker to indicate the conditions under which it might not be true.

For this analysis, the fourteen interviews (20006 lines, or about 670 double spaced pages of text) were coded by topic. Toulmin's categories of argument were then applied to the 9423 lines of interview material which involved the Tope issue. As an example of the material which resulted, Figure 1 diagrams this statement:

> The three school campus isn't going to go unless I push it, I think. I don't think it's one that's naturally going to come up on the Board. It will be presented as an alternative and unless it's overwhelmingly financially attractive I think the inclination would be to stay in the neighborhood pattern, go for a referendum, sell Tope, escrow the money, invest it, and take security in the fact that there'll be money in the bank if we need to add some more space at some time.

Figure 1 about here

To further structure the vast amount of material available in the interviews, the 350 claims which were identified using Toulin were further coded for the main subject of each claim. A summary of some of the results of this coding procedure are included in Table 1.

Table 1 about here

Analysis

The coding summarized in Table 1 indicates a significant break around December 1980, first in the kind of claims Ingram was making, and then in his attentiveness to the Tope issue. Before the December interview, many claims, and indeed much of the data offered to support them, involve present or anticipated actions.

Then, in response to events which will be described below, Ingram began to have doubts about the District's overall approach to the Tope issue. A clear signal of this shift back to problem formulation is that the claims being made directly involve the criteria for decision making. The end of this reformulation period is not well defined, but by the end of April Ingram had again begun to focus on action. In June, the month of the board decision on the Tope issue, his action oriented assessments often involve how individual board members were likely to vote, and how he thought they should vote.

Our data on the Tope issue provides a unique opportunity to look at executive problem formulation, or in this case reformulation, in an organizational context. Very little research has been done in this area (Lyles, 1981:61), especially in non-laboratory settings. Lyles' work (1981), based on recollective interviews with thirty-three middle and upper managers, led to a heuristic model with three general phases: (1) a period of individual awareness and incubation, which is activated by some triggering event into (2) an organizational phase of information gathering, problem rationalization and debate, until (3) some resolution is reached. Lyles documents, however, that most problem formulating episodes cycle through the steps of problem formulation more than once. Quinn (1980), who studied strategic change in a number of major corporations, supports the notion that redirection of organizational efforts is an iterative and time consuming process, with both analytical and political components.

The Tope issue follows this broad outline of the problem formulation process. Our data collected during the period of decision making allows, however, for a more detailed look at the content rather than the process of decision making. This examination of the Tope issue focused on three questions:

1. What causes departures from an established line of decision making?

2. What feeds the recycling involved in the period of reformulation?

3. How is a new direction established?

The results of this analysis can be summarized in the following way.

1. The appearance of new alternatives did not, per se, dislocate the established flow of decision making. Ingram identified four alternatives for Tope in our first, November 1979, interview. They were to rent, lease for a nominal fee, turn the building over to the town for senior housing, or tear the building down and sell the land. By February 1980 Ingram claimed that "we are leading to the logical conclusion of razing the building." He also noted, however, that a fifth "central campus" alternative had received some attention. Interest in this alternative stemmed from the financial advantages of operating out of fewer buildings, and the ease with which the district could offer a school lunch program.

Th constellation of alternative resolutions of the Tope issue had changed, to our surprise, when we began interviewing again in the fall of 1980. The town planning commission had revitalized the senior housing option Ingram had previously dismissed. Then, a local church interested in expanding their facilities contacted the district. In October Ingram expected that Tope would go to one of these two buyers. These changes in the Tope issue, which demanded adaptation in Ingram's activities and his predictions, did not, however, cause him to rethink the general direction established several years earlier.

2. Indistinguishable alternatives, on the basis of criteria already established, did not, per se, disrupt the established flow of decision making. The criteria for deciding what to do with the Tope building were rarely mentioned directly in this period. Ingram was concerned with being financially responsible. He also wanted to maintain the district's independence in the decision, while being responsive to town and neighborhood welfare in choosing a user of the building. Neither the church nor the town appeared to have a clear edge over the other on these dimensions, but Ingram suggested several times that the more general criteria of expediency or "a bird in the hand kind of thing," might be the deciding factor.

3. Reconceptualization of the Tope issue was triggered by an argument presented as part of an unrelated, short term, problem facing the district.

This argument challenged not the set of alternatives (though it revitalized a previously dismissed alternative) but the key criteria by which the original decision to close Tope had been made. In December 1980, an apparently unrelated event changed the focus of attention on the Tope School issue. Third grade parents from one building in the district, dissatisfied by a class size larger than third grades in other buildings, and unable to persuade the principal or superintendent to add another teacher, organized and brought their complaint to the school board. During several public meetings the administration argued that the size of the class was within the bounds of normal practice in the district over time. One parent, however, using some of the same data presented by the administration, suggested that inequities among classes had increased and that even greater variation in class size should be expected as enrollment continued to decline.

This argument highlighted for Ingram an educational disadvantage of the neighborhood schools which had previously been universally characterized as an expensive, but educationally preferable, way to organize the district. Centralizing students in fewer buildings could now be seen as providing more options for matching individual students with appropriate class configurations, a particularly important aspect of Allison Park's educational philosophy. However, if students would benefit from larger numbers in one building, it was important to make that decision before disposing of one of the largest, and most centrally located, buildings in the district. Ingram therefore decided to push the board to consider a central campus alternative. In his words, the central campus concept "was real to me before...but [the analysis of class size inequities] gave a different dimension to it than it had before."

4. Expanding the criteria considerably expanded the scope of the decision and necessitated new kinds of analysis, which lengthened the reformulation process. Once educational criteria were introduced, additional actors (notably teachers, principals, parents and the public) became involved. A series of public meetings were held. A teacher committee was appointed by the board to consider "qualitative" aspects of the issue in its expanded form. District administrators prepared figures on class size, classroom space and projected costs under various assumptions. At the same time an external demographics consultant was asked to look again at his projections, an architect was asked for rennovation estimates under various assumptions, and a financial consultant helped project district finances. Commissioning and hearing these reports took almost four months, even though many extra meetings were held.

5. Reformulation was shaped by the last decision about Tope and by the concern with class size which triggered reformulation. In our first interview, when Ingram recapitulated the board's initial decision to close Tope, he indicated that some members of the community felt "sandbagged" by the fact that identifying Tope as the building to be closed was a last minute compromise decision. A parent group explicitly referred to this incident in one of the first meetings held in 1981 and demanded the right to fully discuss any alternatives the board considered. During the spring, parent representatives often called daily to ask if special meetings had been arranged. Typically one or more members of the public exercised their right to attend such meetings. In retrospect Ingram felt that the board, unused

to this level of public attention, delayed conversation which would have indicated to each other the position each was beginning to take on the Tope issue.

Throughout deliberations, a continued concern with class size could be seen. Alternatives discussed by teachers, administrators and the board included comparisons of class size implications.

6. Reformulation continued through the period of analysis. An interesting aspect of the public debate about "the" central campus alternative was the lack of specificity about which buildings would be closed or the grade configuration which would be assigned to remaining buildings. Various options continued to be explored through May, when the board considered relocating junior high students to Tope and maintaining all of the neighborhood grade schools.

7. The development of a new framework, involving "future flexibility," finally allowed one alternative to be viewed as having a significant edge over other alternatives. Ingram tried various ways of reframing the Tope issue. In January, for example, he said "I think I would have more comfort with a three school central campus decision because I know it's got some room for error, it's reversible." In February, he felt that "from a space point of view the current pattern is a pretty inefficient use of space, we're going to have the equivalent of a whole building of unused space." In April he said the majority of the teaching staff would accept the central campus concept because of "a need to grow and change" and he felt that this concept was also responsive to changes in the community. In May he said that in a central campus mode "people are going to be much more highly motivated, with much greater sense of responsibility."

Despite these and other potential framing concepts, however, Ingram was not able to confidently support the central campus concept. In May, for example, he said: "I'm scared about it. I'm not sure we're right for this key decision. It's not such a black and white clear cut kind of decision." The frame that finally allowed him to support the central campus alternative and urge the board to support it as well was expressed in terms of "future flexibility." Concern with the future needs of the district can be found throughout our interviews, but are not frequent. The word "future" is used from 0 to 5 times an interview until May, when it is used 11 times. On June 16, however, Ingram uses the concept of the future 42 times; talking, for example, about "how the future of the district can best be spent," "the kind of participation that's required to take bold action in the future," and "the discomfort of thinking about the future of the district in [the neighborhood] configuration."

This brief overview of the Tope School issue suggests some initial answers to the three questions asked about the content of problem reformulation. First, Ingram's initial formulation of the Tope issue was able to withstand considerable variation in potential resolutions of the issue. It was only when another event raised explicit questions about the criteria around which the original decision was made that he began to reconsider his

way of framing the issue. (It might also be noted, in support of Lyles (1981) and Quinn (1980), that Ingram had already begun to have doubts about a firm offer for Tope actually materializing; thus making reconsideration more likely).

Second, the introduction of new criteria considerably expanded the scope of the Tope issue. New analysis was required. Teachers became important actors as educational criteria were reintroduced. Parents and the community wanted to be involved. Throughout this period various alternatives were experimented with, which necessitated more complicated analysis and required additional interaction.

Finally, Ingram had considerable difficulty finding a satisfactory way of framing the Tope issue in its expanded state. It took several months before the flow of events and the "trial arguments" he generated led to a formulation strong enough to warrant his commitment. The successful distinction among alternatives was arrived at after considering many possible ways to frame the decision.

A Leadership Dilemma

Finding a frame is only part of the leadership task. The second part of the task is using the frame to influence others. As Bower and Doz suggest, a central task of the chief executive officer is to "shape the premises of other executives' thoughts" (1979:157).

Ingram was very aware of his obligation as superintendent to "take a position" on the Tope issue. The behavior necessary to find an appropriate frame for the Tope issue, however, may well have stood in the way of the behavior needed to influence others. To find a suitable frame one might expect the attributes of creative problem-solvers, including "a questioning attitude" and "fluency and flexibility of thinking" to be important (Adams, 1974:76,79). The Tope issue illustrates why these characteristics are necessary: new actors need to be informed and heard; new information

will (or might) appear as soon as various analyses are completed; the exact nature of alternatives cannot be specified until this information has been gathered; and so on. As Quinn suggests:

> Strategy deals with the unknowable, not the uncertain. It involves forces of such great number, strength and combinatory powers that one cannot predict events in a probabilistic sense. Hence it is logical that one proceed flexibly and experimentally from broad concepts toward specific commitments, making the later concrete as late as possible in order to narrow the bands of uncertainty and to benefit from the best available information. (1980:56)

Flexibility, experimentation, and delayed commitment can also defer, however, the second leadership task of influencing the framework others apply to the issue. Quinn points out the necessity of building other's knowledge of the situation and increasing their commitment to the general direction emerging from the reformulation period. Yet he is vague about the way in which executives can do this. In fact a difficult double requirement seems to be placed on leaders. On the one hand they are asked to delay their own commitment until reformulation activities are well underway. On the other hand they must have enough vision and commitment to channel the thoughts of others during this process.

Ingram largely achieved this difficult task within the schools. The rhetoric of future flexibility was partially discovered and advanced in the teachers' committee of which he was a part. He also increased his interaction with and reliance upon the principals. By May all of the principals and many of the more vocal and respected teachers were supportive of a central campus alternative. The board, however, was not brought along by the same developments. Although two board members sat on the teacher committee, they left communication of the results to a formal report from the teachers at the end of their deliberations. (As noted above, the public nature of the decision may have been an important factor in

suppressing interaction among board members while they were still in a data gathering posture.)

Ultimately Ingram did try to persuade the board that the future needs of the district strongly favored the central campus alternative, but the final vote supported selling Tope as originally planned and maintaining the neighborhood schools. Many factors appear to have had a hand in this divergence of opinion. Ingram felt that there were strong positive aspects to the traditional pattern. He was reluctant to be seen as a partisan debating with pro-neighborhood forces in the community. He felt that a sophisticated board should be presented with a sophisticated analysis of alternatives.

While these and other factors are unique to the Tope issue, I believe that the quandry Ingram found himself in typifies a generic problem of leadership. Leaders hope that situations will unfold in an orderly enough way that their worst doubts will be past before the situation requires a public voice. Even to have the first broad outline of an assessment will then help channel the discussion. But that is not always possible. The leader, in fact, begins at a disadvantage, because of the broader perspective the position requires and the time that the process of reformulation often requires. It is likely that special interest groups--in this case parents protecting neighborhood schools--will be able to more quickly and easily articulate a position and begin to influence others since their interests are more focused and narrowly defined.

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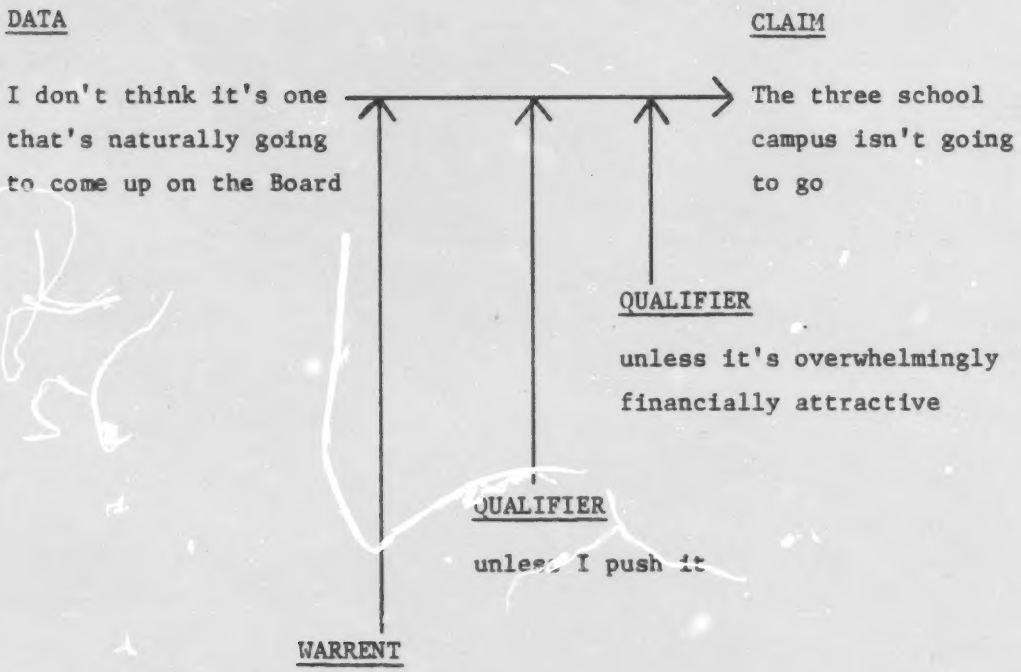
DATA
I don't think it's one that's naturally going to come up on the Board
CLAIM
The three school campus isn't going to go
QUALIFIER
unless it's overwhelmingly financially attractive
QUALIFIER
unless I push it
WARRENT
The inclination [of the Board], would be to stay in the neighborhood pattern, go for a referendum, sell Tope, escrow the money, invest it, and take security in the fact that there'll be money in the bank if we need to add some more space at some time.

Figure 1: Argument Diagrammed Using Toulmin's Categories

Interview	Date	Approx. Length (ds pages)	% Tope	# claims[1]	# action claims[2]	# predicting claims	# claims specifying alternatives	# claims applying specific criteria	# references to "future"
1.	11/2/79	51	27%	10	--	--	1	--	--
2.	2/21/80	58	30%	17	2	2	5	--	5
3.	9/5/80	75	26%	25	6	4	2	--	--
4.	9/16/80	43	20%	14	1	6	--	--	--
5.	10/02/80	40	8%	5	4	1	--	--	--
6.	10/29/80	43	34%	17	5	5	--	1	5
7.	11/06/80	34	14%	7	1	1	--	--	1
8.	12/05/80	71	29%	37	--	2	4	11	5
9.	1/22/81	59	60%	38	--	6	--	1	2
10.	2/11/81	21	67%	17	--	2	4	7	2
11.	4/26/81	24	99%	21	5	5	1	2	5
12.	5/21/81	52	98%	56	8	10	3	4	11
13.	6/9/81	19	100%	14	2	2	2	1	--
14.	6/16/81	76	87%	72	10	5	--	3	42

Table 1: Summary of Coding Data

[1] the # of claims includes direct responses to interviewer questions, unless answers are factual.

[2] claims that involve what the superintendent, board, or other actors are doing, or have just done.

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Toward an Interactive Model of the Natural and Rational Aspects of Accounting in its Organizational Context

Richard J. Boland, Jr.
Department of Accountancy

and

Louis R. Pondy
Department of Business Administration

University of Illinois
at Urbana-Champaign

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Abstract

Research on accounting in its organizational context is most fruitfully done by attempting to understand how its rational and natural aspects interact within the lived experience of individuals. Accounting serves both objective and symbolic functions. Research that emphasizes a genuine union of the two aspects reveals accounting's role as a complement and supplement to more qualitative and interactive forms of problem solving. It also reveals that accounting is a technique that must be transcended to be used effectively and that its inadequacies challenge humans as moral agents.

Rational and Natural Systems

Scott (1981) has characterized the development of organization theory in this century as a progression from:

1) closed system rational models emphasizing efficient input-output transformations, to

2) closed system natural models emphasizing humanly satisfying inter-personal dynamics, to

3) open system rational models emphasizing structural adaptation to environmental and task uncertainty, to

4) open system natural models emphasizing the nonrational aspects of adaptation and the importance of survival over goal attainment.

The more recent open system natural models focus attention on power, coalitions, language, rationalized myths, sense making, and ambiguity.

Figure 1

Rational models see managements confronted with an objectively knowable, empirically verifiable reality. Guided by a functionalist framework, managements analyze the cause and effect relations, calculate costs and benefits and take action in response to the demands of the environment or the technology of production. Natural models, on the other hand, see managements as responsible agents who interact symbolically and, in so doing, create their social reality and give meaning to their ongoing stream of experience. Whereas objective analysis guides rational models, symbolic interpretation guides natural models.

Figure 1*

Dominant Theoretical Models and Representative Theorists for Four Time Periods

Closed System Models		Open System Models	
1900-1930	1930-1960	1960-1970	1970-
Rational Models	Natural Models	Rational Models	Natural Models
Taylor (1971)	Bernard (1938)	Woodward (1965)	Hickson et al. (1971)
Weber (1947)	Roethlisberger and Dickson (1939)	Lawrence and Lorsch (1967)	March and Olsen (1976)
Fayol (1949)	Mayo (1945)	Thompson (1967)	Meyer and Rowan (1977)
	Dalton (1959)	Perrow (1967)	Pfeffer and Salancik (1978)
	McGregor (1960)	Pugh et al. (1968, 1969)	
		Blau and Schoenherr (1971)	

*From Scott (1981) p. 409.

The rational and the natural present two ways of knowing and of taking problem solving action in organizations. The rational approach emphasizes model-based analysis that encompasses relevant causal factors and selects desired outcomes based on a comprehensive understanding. The natural approach, in contrast, is less global in pretense and does not seek a comprehensive understanding as a basis for problem solving. Instead, solutions arise from interaction and adjustment within culturally available ceremonies and rituals. No global understanding is necessary for a political process to generate problem solving action.

Thompson's (1967) major contribution was the articulation of how organizations are both open and closed systems; striving for rationality (closure) in the face of uncertainty (openness). The corresponding insight for organization theory today is that organizational problem-solving proceeds by an interaction of rational and natural processes. The interaction is one in which each aspect of organizational action serves as the context for the other, as an alternation between figure and ground. Establishing this insight requires taking the perspective of the individual as an actor within an organizational setting.

The individual actor in an organizational context encounters an objective, external social world "out-there" that presents structural constraints to action and determines what is seen as rational and logical. But, the individual also participates in the construction of that social world by interacting symbolically with others and sharing subjective interpretations of what is real and what reality means. Thus, action is rational in light of a socially defined context, and it is a belief in a comprehensible, rational scheme of things that makes sense-making worth doing.

Accounting is a unique element in the experience of organizational life, and the study of accounting in its organizational context can do much to illuminate the interaction of the rational and natural aspects of organizing. Accounting is one of the major formal sets of symbols available to organizational actors for ordering and interpreting their experience. As a language, accounting provides categories for discourse that reflect both rational and natural aspects of organizing. Accounting is a rational device in that the objectively measureable characteristics of the organization and its environment--the simply given--is filtered through accounting categories. It is a natural device to the extent that its categories impose a coherence on chaotic organizational processes; defining what is real; dignifying certain questions as important and stopping others as inappropriate or irrelevant. As ritual, accounting brings structure and significance to budgeting, planning and evaluation processes. Through its use, new members come to understand and old members find reinforcement for the shared interpretive schemes of their organization. Accounting thus both makes sense within and is used to make sense of the frames of reference that characterize an organization.

Towards A Genuine Union

Natural system theorists employ a series of dichotomies to distinguish their unique emphasis, concerns and modes of analysis from those of rational system theorists. Burrell and Morgan (1979) aligned organization theories along a subjective-objective continuum. Meyer and Rowan (1977) distinguished productive organizations from institutional organizations. Rhenman (1973) distinguished strategic managements from institutional managements. Contingency theories propose that specific

task-environments are either natural or rational, mechanistic or organic, theory x or theory y and that management and organization design should appropriately "fit" by being one or the other.

The polarities reflected in natural system theories are important in establishing the perspective as legitimate, but contingency is too limited as a basis for pursuing the implications of natural system approaches. As a basis for research or design it fails to appreciate the interaction of the natural and rational and the dialectic quality of the lived experience in organizations. An alternative to contingency theories is based on an appreciation of the genuine union of rational and natural systems.

Brown and Lyman (1978), in concert with natural system theorists, distinguished positivist from romanticist social theories, but also emphasized the necessity of transcending these distinctions and developing approaches to social theory that incorporate both. A genuine union of natural and rational systems theories is one such effort. The essence of a genuine union is the recognition that each way of understanding organizations serves as the context for the other. Organizational action is seen as rational relative to an intersubjective domain of understanding, and symbolic interpretations endure when they are seen as resulting in positive empirical consequences.

In the proposed genuine union, the field of mutual context is resolved as a figure/ground relation in which rational structures as context can enable natural processes and in which natural understanding as context can inform rational development. For instance, myth as a natural understanding provides images of a future and defines ideals

for the development of rational technology, yet an existing technology presents the problems and promises that give rise to new myths. Similarly, an existing institutional arrangement (natural system) is the context for the design of an appropriate formal (rational) accounting system, but when the environment shifts, it is the accounting system which provides the context for interpreting the new institutional arrangement.

A second important characteristic of a genuine union of the rational and the natural is the dual nature of any particular aspect of organizations. Although technology is discussed as if it were rational, myth as if it were natural, accounting as if it were rational, etc., each category contains the potential of both. Subjective experience, once externalized, confronts us as objective reality and no rational model can escape its inherently symbolic and interpretive nature.

To research accounting in organizations as the genuine union of natural and rational systems requires the following:

1) The research must focus on action in organizational settings. The objective is not to study accounting per se, but to study individuals acting in organizations.
2) The research must use case analysis of specific situations in which individuals experience accounting systems while solving organizational problems.
3) The research must be interpretive and recognize the symbolic use of accounting in ordering and giving meaning to the individual's experience.
4) The researcher must step out of the actor's frame of reference and take a critical view of the actor's definition of the

situation, in the sense that the actor's purely subjective interpretation must be transcended.

Accordingly, this paper presents two short case studies of problem solving processes and critically interprets the use of accounting in those organizational contexts. Afterwards, some generalizations on accounting in its organizational context will be proposed.

Study Number One--A University Budget

The first study is titled "Creative Responses to Retrenchment" and explores how public institutions (and especially the University of Illinois) interpret and respond to a climate of limited growth or actual decline.[1] The program of inquiry was initiated by David Whetten and has included interviews with significant actors in the drama (Chancellor, Vice-Chancellor, Deans, Department Heads, lobbyists, legislators and faculty leaders). The study is particularly concerned with observing and interpreting how the University makes sense of and responds to a decreasing student population, a decline in state and federal funding and the strains of inflation. One important theme in the study is the role of the budgeting process in securing and allocating financial resources.

The formal budgeting system of the University is a well-defined process that has developed over a fifty year period. It is a cycle that takes two years and three months to complete. The cycle moves from

[1]This study group is organized under the auspices of the Center for Advanced Study at the University of Illinois and includes Stuart Albert, Daniel Alpert, Richard Boland, Fred Coombs, Hugh Petrie and David Whetten.

departments through the colleges, the Vice-Chancellor for Academic Affairs, the Financial Vice-President and the Board of Trustees to the state Board of Higher Education and finally to the Governor and the legislature. The budget request is stated in terms of incremental needs of five types. There is a form (called a PB) for each type of need, and the budget increment request is the sum of all the separate PB's that survive the entire process. The five categories for needs are:

PBI - New programs and major improvements in existing programs

PBII - Requests for increased departmental operating funds

PBIII - New buildings

PBIV - Major remodeling

PBV - Safety and security improvements

These categories for describing needs are kept wholely separate from the existing budget base and only these incremental amounts are discussed in the formal budgeting process. In fact, the "Operating Budget Request" which is presented to Board of Higher Education and the state legislature by the University does not even mention the total budget. Its seventy nine pages (for fiscal 1982) hides the vast majority of the budget dollars and speaks only of additional funding.

The total budget, once determined, is allocated to individual colleges which have complete discretion in its further allocation to departments. Departments, in turn, have traditionally had complete discretion in the use of their funds. Departments have been free to allocate funds among expense categories and to shift funds among categories, at will.

The formal budgeting system is interpreted as an adaptation to an internal climate and to an external environment. The budget is an adaptation to value systems as well as to the levels of uncertainty that are emphasized by contingency theories.

Internally, the University value system is characterized by the headship form of departmental management. A department head is distinguished from a chairperson by the greater autonomy granted to the head. Whereas a chairperson is expected to be the voice of the democratic determination of departmental faculty, a head is expected to be an leader who listens to his/her faculty but acts based on independent determinations. The University Chancellor has recently stated:

> A university cannot be run like a participatory democracy and my view of collegiality does not embrace the concept of units with 30 co-heads. It does embrace the idea of responsible and responsive administrators who listen to the concerns of their constituents and use the structures visualized by the University Statues.[1]

Hence, the looseness and vagueness which characterized the departmental level budget allocations is an integral part of the autonomy granted to department heads. As one head put it, "you can't tell what I will do based on the budget categories--I can change dollars from any account to any account."

Externally, the University has historically experienced very supportive environmental value systems. The University is called the "crown jewel" of higher education in the state (although recently it has adopted the more modest and politic term, "flagship" of the state

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[1]Chancellor John Cribbet ILLINI WEEK, Vol. 1, No. 74, January 22, 1981, p. 1.

system of higher education). Over the last ten years it has received a greater than average share of the total dollars made available for state funding of education. The state has enjoyed a diversified and resilient economy that until recently has allowed new universities and colleges to be founded within the State, even while University funding has increased.

The PB system for budget requests fit this supportive environment well. It allowed the autonomous departmental units to portray the onward and upward thrust that was expected of the crown jewel, and rewarded the constant development of new and expanded programs.

In the last several years, however, the environment has begun to shift. In keeping with trends across the nation, the post-war baby boom generation has passed through its prime college age profile. Student enrollments are forecasted to decline steadily over the next fifteen to twenty years. Concurrent with reduced student enrollments, the economy of the state has stagnated and efforts to reduce the state sales tax have been successful. The result is a massive need for budget cuts across all state departments. Even so, the strongly supportive value environment experienced by the University has saved it from actual budget cuts. The University has, however, suffered reduced annual increments, and less visible components, such as faculty pensions, have been consistently underfunded. In the last two years, only $50,000 out of $6,000,000 in PBII requests were funded, and frequency of PBI requests has been reduced from annual to bi-annual submission.

Using the imagery developed earlier in the paper, the values, ideologies, myths and political processes which characterized the internal and external environments were natural systems and the formal budgeting process was an example of a rational technology adapting to natural environments. In this sense, a natural system provides the context for a rational system. But, when the budgeting process as a rational system is used by organizational actors, it in turn becomes the context for a natural process. It gives structure to the dialogue of budget proposals and approvals, and the exercise of university, legislative and governmental value systems.

Its role as context remains ambiguous, however, as the flexible and vague account categories allow department heads to freely exercise unique value systems in the face of the formal allocation schemes.

The formal budgeting system was a successful adaptation because it framed the problem of budgeting in a way that was congenial to both the internal and external value systems. Externally, it framed the problem as one of selecting the next jewels for the prized crown-of adding the next scene to the vista of the mosaic. Internally, it provided a free space of movement that allowed the dramatic enactment of the myths of academic independence and headship autonomy. In so doing, the rational and natural systems aspects of the budgeting process displayed a relationship of mutual context.

The recent demographic and financial shift in the environment affords a unique opportunity for observing and interpreting the use of this accounting system. With these shifts, the congeniality of the adaptation is upset. No longer does the accounting system simply mirror

the budgeting problem presented by the environment as if it were and externally determined, objective "fact." The University community and its leaders are faced with a new problem of a different logical type. This new problem is one of making a sense of its changed environments, both internal and external, of giving meaning to its actions and creating its new social reality.

Against the backdrop of this external environmental shift, accounting plays an active role in shaping the definition of the new situation and in constructing the shared understanding of a new world. The accounting system as a formal set of well defined categories is now seen as a language used to make an interpretation of the immediate condition and to define images of the future. It is now clearly not a calculus for choice, since the choices that are open and the very field of action in which they are available has yet to be defined. The symbolic aspect of accounting systems becomes clearly apparent as it is used to define the new frame of reference itself.

In this new context, the symbolic uses of accounting are brought into stark relief. Firstly, the process of generating and evaluating PB forms continues, even though the funding for them is clearly not available. They are seen now as an important vehicle for defining and clarifying values and for supporting a dialogue on potential solutions. For instance, the Department of Business Administration recently proposed a program for allowing faculty migration to high demand disciplines by supporting post-doctoral study in management for faculty from other, overstaffed areas of the University. Even though the proposal was not funded, the budget process provided a forum for its discussion

across departments and levels. The fact that it was highly ranked in the budgeting process is seen as a significant accomplishment in its own right. An alternative direction for the future was articulated, explored and valued in a way that would not be possible outside of the budgeting process.

Secondly, the symbolic importance of the titles used in the budget request is heightened. For example, the titles "academic development fund" and "graduate research board" take on the added connotation of excellence in teaching and scholarship. The budget request argues that the fundamental quality of these two missions is threatened unless these funds are available, although no specific programs they will fund are identified. Similarly, the caption "program of fundamental research directed to Illinois industry" refers to state mandates of 1904 that cannot be met without additional funds. Once again, no specific research programs are identified. These tactics are readily understandable attempts to gain added flexibility and discretion within the University.

A more significant symbolic role of accounting is the use of account captions which have political appeal to legislators with the intention of reallocating the funds, once received, to other purposes. For instance, significant funds were requested under the captions "repair and maintenance" and "equipment" even though the intention was to use the monies for research and salaries. The maintenance account, however, connotes union laborers and equipment connotes tangible industrial products, both of which are felt to be politically viable. State legislators can understand these categories and can link them to their own chances for re-election, therefore, it was argued, they would be more

willing to support them than the more amorphous requests for research.

Thirdly, the formal budgeting language enters the political arena and takes on a new significance. In particular, the Governor of Illinois had taken a posture on faculty salaries as a part of his re-election campaign. A faculty raise of at least 10 percent was promised and a request for 11.25 percent was incorporated into the first 1982 budget proposal. The politicization of this budget item is an especially intriguing phenomenon. First, the amount of the raise was lowered to 10 percent--the minimum promised. But this was not enough. Salaries are the single biggest item in the University budget, and the shortage of state funds put extreme pressure on the 10 percent figure.

The political need was to change this figure in dollars without changing it as a reported percentage. As a first step, the 10 percent was redefined as 8 percent initially with an additional 2 percent increment six months later. Both of these increments were calculated on only 90 percent of the total salaries. This was still officially reported as a 10 percent raise. Pressure for budget cutbacks was not abated, however, and it is at this point that the formal process for hiding the vast bulk of the budget from open scrutiny turns to the University's disadvantage.

Certain non-recurring estimation errors, payment timing differences and miscellaneous income that lay buried in the current year's budget were identified at the State level. These amounted to roughly forty percent of the promised raise. The State's actual funding was then further reduced by this amount, and these dollars were taken out of the hidden bulk of the current budget and put into the exposed, incremental

category of next year's budget as faculty raises. Overall, almost half of the budget category for 1982 faculty raises represents a stripping of non-recurring slack from the 1981 budget. By using the slack in this way, a 5 percent increase to the total salary base will be required in 1983 just to maintain the budget at its 1982 level. Yet, the faculty raise is still officially reported as being 10 percent, just as the Governor had promised.

Fourthly, the strain this environmental shift puts on the accounting system makes its inadequacy for representing the situation readily apparent to the individuals who construct the accounts. Yet, the individuals are trapped in a structure where they feel there is very little they can do. The strain on their moral character is significant. When advised to classify budget requests as maintenance or equipment they resist. "It's not honest!" But they are met with a stark rejoinder. "Do you want the money or not?"

When the first signs of cracks start to appear in the budget, the initial response is to patch up the problem, making the budget look like it's supposed to, so that the vast majority of the University won't worry about it. As good managers they take it upon themselves to bear the mental anguish and weather the storm. In the case of the faculty raise this strategy left them with a most difficult situation. The form of the budget was fine as publicly reported, but they knew its substance was sorry indeed. What started as a problem too trivial to bother the faculty with quickly became a problem that was so complicated they doubted the faculty's ability to understand it. During one interview session, two budget administrators were explaining some of the

details and the recurring question of "what can we do?" was met by one administrator lowering his head and softly saying, "we could tell the truth."

Because accounting is symbolic not literal, vague not precise, value loaded not value free, dealing with meanings not just things, it tries humans as moral agents. An accounting system must be understood as symbolic because its inadequacy as a literal, objective representation of things and events is experienced by those who make it and use it. As moral agents, humans respond to the experience of accounting inadequacies by transcending its formal categories. Happily, in this study, key administrators have done just that. By calling special meetings of the faculty and by attending departmental and college meetings they have sought to interpret the meaning of the budget categories. Shortly after the union attacked the raise as a sham and claimed it was closer to 7.1 percent than to 10 percent, a Vice Chancellor announced it was actually closer to 6 percent. Transcending the formal accounting system does not come easily and requires an act of courage. When we think of accounting as strictly rational it is hard to see this, but when we appreciate its natural system aspect as well, it becomes obvious.

Finally, the study reveals the symbolic aspect of accounting in the creation of new categories and words. An accounting system is a living language which changes over time in response to new needs and situations. In this study, two new words have entered the formal system. Most recently, the term "shortfall" has been coined to explain the inadequacy of the incremental budget categories. "Shortfall" is the amount of increase officially reported in the formal budget that is not really

an increase at all. It also connotes a mortgage on the future used to make today's reported increment appear adequate.

The concept of a "tax" is another innovation in University accounting terminology. A "tax" is a charge levied on all departments on a uniform percentage basis. Budget officers are then able to re-allocate the receipts of the tax on a non-uniform basis. This is an attempt to decouple the loss of funds by one group from the gain of funds by another. Its success as a buffer mechanism, however, is not clear.

Changes in the formal accounting language are intimately tied to shifts in power and control. The development of a tax mechanism is a convenient way to exercise power and reallocate resources. Other actors in the drama are also trying to change the accounting language to enhance their power. At the state level, legislators voice concern over the lack of control and equity in the use of University monies. They desire to increase the standardization in the amounts and use of funding by categories, effectively eliminating the department heads' freedom to shift funds among categories and the administration's ability to tax and reallocate. At this point in time, the drama is just beginning over these changes in the formal accounting system. However, it should prove to be another example of the interaction of the natural and the rational as the various factions strive to transform the budgeting system to their own advantage.

Study Number Two--A School Closing Decision[1]

In this section we describe and interpret the role that accounting analysis has played in the decision of an elementary school district (grades K through 8) to close one or more school buildings in response to declining enrollment. We shall attempt to show that what the district itself has called "quantitative factors" (e.g., space requirements and financial forecasts) and "qualitative factors" (e.g., preservation of neighborhood schools, maintenance of "trust" among children, teachers and parents) alternate in providing the context or ground within which the other set of factors is justified or made sense of. Thus, accounting analysis is seen alternately as the central concern against the background of educational values, and then as the background against which competing educational values are debated. Rather than incorporating educational concerns into the accounting schema (through some form of cost-benefit aggregation), educational and accounting issues are maintained as distinctive, but interacting domains. The proposed nature of the interaction is that of a switching back and forth of figure and ground.

The district in question is an upper middle class suburb of Chicago to which we have given the pseudonym of Allison Park. The elementary district owns a junior high (grades 6-8) and four elementary (K-5) buildings. Like many communities in the nation, the school age population has declined about 30% over the past ten years. Four to five

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years ago, the largest elementary building, Center School, was tentatively scheduled for a phased close-down to take final effect in 1983. Only about half of the district's sixth grade classes and the administrative offices still occupy the building. It had been planned that the other three elementary buildings would continue to function as neighborhood schools.

Several alternative dispositions of Center School were actively considered: (a) raze the building and sell the land for residential development, (b) sell the building to the Village for conversion to senior citizen housing, (c) sell the building to a local fundamentalist Bible Church for use as a religious facility, and (d) rent the building to small non-commercial organizations. Of these, the most seriously considered was the possibility of conversion to senior citizen housing. The Board of Education went so far as to authorize in early 1981 sharing with the Village Council a $15,000 architect's fee to evaluate feasibility of such a conversion. Because of important events (described below) that took place during the Spring of 1981, that feasibility study was never undertaken. Instead, the possible use of Center School as an educational facility was reactivated. It is the re-evaluation of the decision to close Center School that we would like to focus on here, especially the role that accounting analysis played in the process.

There were three pivotal events of Spring 1981 that forced a fresh look at the Center School decision:

(a) The Board hired a demographer to make enrollment projections for the next ten years. Under the high projection (which forecasted an actual <u>increase</u> in enrollment), it appeared that the

remaining three elementary buildings might not be adequate to house all students in the late 1980's. Since Center School was the largest of the four elementary buildings, the Superintendent and Board considered the possibility of keeping it open and closing one (and possibly two) of the small neighborhood buildings instead. This strategy would have necessitated moving toward a "central campus concept" and abandoning the long-standing policy of neighborhood schools. A careful cost analysis showed that a central campus configuration would cost $100,000 to $150,000 per year less to operate than the neighborhood configuration. The analysis was "careful" in that details such as differential energy costs, staff positions that could be eliminated in each configuration, and so forth were included in the comparison.

(b) The two members of the Board's Planning Committee made a ten-year financial forecast for the district. It showed an increasing operating deficit (under all building configurations) growing to more than $1,000,000 per year by the end of the decade, thus putting a premium on efficiency criteria. In this way, the accounting analysis had a direct bearing on the value priorities of the district. (It is interesting to note that the Planning Committee members had considerable managerial expertise to draw on; one of them had responsibility for managing a multi-billion dollar investment fund for a major Chicago bank.)

(c) Enrollment declines were not uniform across the district. Consequently, one of the neighborhood schools had "large" classes (29 students in one fourth grade class), and this led to a vocal public protest from parents who had come to expect individualized attention, and who resented the presence of small classes in other schools. This issue of "class size inconsistency" lent further weight to the central campus concept which would consolidate grades in one locale, and thus permit more uniform class sizes than the current neighborhood school configuration.

These three pivotal events forced the Superintendent and Board to consider making Center School (together with one of the other elementary buildings) part of a central campus configuration. As of this writing, the issue is still not decided, but we can trace the outline of events during March, April and May of 1981 during which the issue was sharpened and shaped. The key events constituted a series of public meetings of the Board that were carefully structured and orchestrated. The nature of that structuring is the central empirical point we wish to make with regard to our thesis that rational and natural factors provide the context for each other in processes of complex decision making.

First, the Board partitioned the problem into segments dealing respectively with "quantitative" and "qualitative" aspects.

Second, they elected to deal <u>first</u> with the "quantitative" aspects in a series of public meetings that laid out the space-requirements and financial implications of all meaningful configurations. Elaborate slide presentations were made at various points by the superintendent

and are of the planning committee members, with all of the usual trappings of sophisticated financial and quantitative analysis. (One might argue that the very care with which the analyses were done and presented the use of outside consultants, coverage by the press, and access to the public could be seen as symbolic of responsible management. In this sense, accounting analysis is both literal and symbolic; it represents the facts, but in doing so according to the canons of public ritual, it also symbolizes deeper values of accountability and citizen participation.)

Third, to deal with the "qualitative" (i.e., educational, non-financial) aspects of the choice among possible building configurations, a committee of about 15 teachers was appointed to draft a statement of values that should bear on the decision and to draw up a list of pros and cons for each alternative configuration. At the April 1981 Board meeting, the Committee made its report. (Members of the audience were permitted only to observe, not speak; public participation was scheduled for an open meeting nine days later. The Board President explained later to one of the researchers that the purpose of this prohibition was to permit the Board to structure the issue in an orderly way.) The Committee espoused five values that they felt ought to guide the decision: an enriched educational program; a child-centered approach with individual attention; dignity and self-esteem for children; mutual understanding and purpose between family and school; and trust and involvement between parent, teacher and child.

Unlike the quantitative analysis, the qualitative analysis does not yield an unambiguous preference for one alternative. One ad hoc group of "concerned citizens" published a flyer that concluded:

> "Closing neighborhood schools deprives the community of the best environment in which to foster those values which make an Allison Park education unique, the trust and involvement in a caring relationship between family, child and school."

But other parents and teachers at the open meeting argued with equal force that the central campus configuration could equally well serve those same basic values.

One interesting feature is that the $100,000 extra cost of maintaining neighborhood schools amounts to an additional tax burden of only $40 per family per year, according to a parent letter to the local newspaper. But from the frame of reference of the Superintendent, the $100,000 saved by moving to a central campus translates into four to five extra teachers. So even relatively hard data are subject to radically different interpretations depending on one's frame of reference.

In summary, the district has been able to structure a decision process to deal with a complex, value-laden problem in such a way that accounting data are given a prominent place, but not the dominating place in the decision. In one phase of the process, accounting occupies center stage, and non-quantifiable aspects are "bracketed" or temporarily placed beyond question. However, note that the non-quantitative issues (e.g., creation of central campus concept) are precisely what make doing the quantitative analysis sensible in the first place. At a later stage, it is the quantitative features that are bracketed and a different style of debate ensues over the qualitative, explicitly value-oriented, educational issues. Just as the quantitative analysis seems to follow certain roles of "careful" procedure, the qualitative debate seems also to follow its own, more explicitly political logic.

We believe that this exchanging of figure and ground, of alternating between "bracketing" and "center staging" is a fruitful way of thinking of accounting in its organizational context. It provides us with a novel method for dealing simultaneously with the rational and the natural, with the closed and the open, a way that goes beyond current open systems thinking and contingency theory. The choice need not be between the closed and the open, the literal and the symbolic. Each can provide the context within which the other makes sense and is seen as significant.

Implications

The two short studies of accounting usage provide a basis for appreciating organizations as an interaction of natural and rational systems. In the first, the accounting system is a well established adaptation to an institutional and value framework. It is a rational system relative to the natural system in which it is embedded. A shift in the environment reveals the role of accounting as a formal language for interpreting and making a sense out of the new situation. The accounting system is then seen as a natural rather than rational system.

With the backdrop of environmental change, other natural system aspects of accounting are revealed. The ceremonial functions and the role in value clarification, the symbolic significance of accounting categories, and the political use of accounting categories are highlighted. Perhaps most importantly, the inadequacies of accounting as a rational system are experienced by those who use it and the result is a challenge to them as moral agents. In order to use it effectively they must transcend it and must exercise courage in a political struggle. Finally, the first study emphasizes that accounting systems change and

the change is not simply guided by a rational assessment, but is part of the natural evolution of organizational language.

The second study shows accounting being used in a special analysis resulting from an environmental shift similar to that in the first study. Here, the problem solving process itself is an example of the mutual support that rational analytic and natural interactive approaches can offer each other. The role of accounting as a quantitative rational system is heightened and used to complement and set the stage for more qualitative and interpersonal forms of dialogue. The accounting analysis defines a field of options in which values are further clarified by other means as a basis for taking action.

There is a wisdom to be gained from the second study that accountants would do well to recognize. The wisdom lies in the explicit attempt to avoid trying to solve the school closing problem exclusively within the framework provided by accounting. Instead, accounting is used as one voice in a problem solving dialogue that included qualitative, natural system components as well.

Accounting theorists realize only too well that accounting is a homomorphic representation of reality; it is not a one-to-one isomorphic mapping of the real system, but only a many-to-one mapping in which thousands of details fail to be captured in the accounting representation. A common tendency is the attempt to overcome the limitations of the many to one reductions of accounting by expanding its categories to include a broader class of elements than suggested by its traditional framework. Human resource accounting, social accounting, decision analysis and social indicators are examples of these attempts. Although

these efforts enhance the role of accounting they often reduce the richness of our problem formulations by excluding decision factors not incorporable into the accounting framework.

By instead seeking a genuine union of the rational and natural systems approaches, accountants can use their accounting representations as one voice in a problem solving dialogue that includes other, complementary voices. A medley of voices rather than an enhanced accounting capability is the genuine union approach to improved problem solving. In the field of mutual context suggested by the genuine union of rational and natural systems approaches, accounting is simultaneously seen as figure and as ground, as an adaptation to a presented social reality as well as a context for constructing a social reality.

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